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ABSTRACT

This publication contains curriculum suggestions for teaching the Environmental and Public Health component (grades 10, 11, and 12) of this prototypic curriculum series. The format consists of four columns intended to provide teachers with: (1) a basic content outline, (2) a list of major understandings and fundamental concepts, (3) information about resource materials, and (4) teaching aids. Specific curriculum contents include: (1) rationale for man to improve his environment, (2) psychological aspects of health, (3) gerontology and geriatrics, and (4) societal health problems. Because of the comprehensive nature of the total curriculum - health program, users are advised to become familiar with all strands presently in print. (TL)

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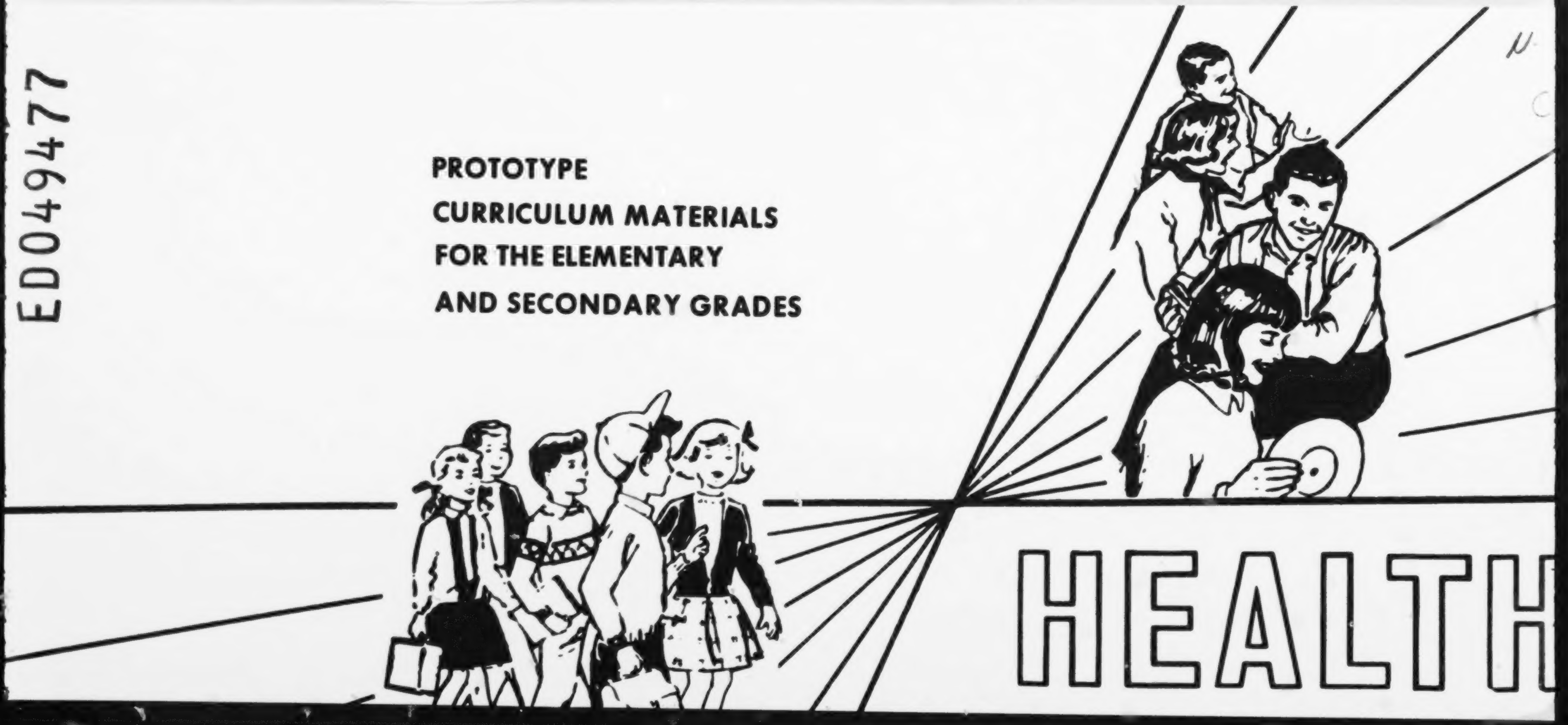
PROTOTYPE
CURRICULUM MATERIALS
FOR THE ELEMENTARY
AND SECONDARY GRADES



STRAND IV ENVIRONMENTAL AND COMMUNITY HEALTH

Environmental and Public Health
Grades 10, 11, and 12

Special edition for
evaluation and discussion

CG006 281

THE UNIVERSITY OF THE STATE OF NEW YORK/THE STATE EDUCATION DEPARTMENT
BUREAU OF SECONDARY CURRICULUM DEVELOPMENT/ALBANY, NEW YORK 12224/1971

ED049477

STRAND IV

ENVIRONMENTAL AND COMMUNITY HEALTH

Environmental and Public Health

Grades 10, 11, 12

U.S. DEPARTMENT OF HEALTH, EDUCATION
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FOREWORD

This publication contains curriculum suggestions for teaching Strand IV — Environmental and Communit ealth: Environmental and Public Health, for grades 10, 11, and 12.

The publication format of four columns is intended to provide teachers with: a basic content outlin n the first column; a listing of the major understandings and fundamental concepts which children may chieve in the second column; and information specifically designed for classroom teachers which should rovide them with resource materials, teaching aids, and supplementary information in the third and ourth columns.

The comprehensive nature of the health program makes it imperative that teachers gain familiarity ith all of the strands presently in print. In this way, important teaching-learning experiences may be eveloped by cross-referring from one strand to another.

It is recommended that the health coordinator in each school system review these materials carefully nd consult with teachers, administrators, and leaders of interested parent groups in order to determine he most appropriate manner in which to utilize this strand as an integral part of a locally adapted, bro nd comprehensive program in health education.

The curriculum materials presented here are in tentative form and are subject to modification in ontent and sequence. Critiques of the format, content, and sequence are welcomed.

Gordon E. Van Hooft
Chief, Bureau of Secondary
Curriculum Development

illiam E. Young
irector, Curriculum
evelopment Center

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Overview

Environmental and public health education should include learning activities for students to help them to understand the historical and contemporary efforts of man related to developing and controlling environmental and public health problems. Students are given the opportunity to explore the nature and scope of public health activities. The emphasis in learning experiences is placed on developing in students an awareness of their responsibilities to the society and environment in which they live.

Further, this strand provides information and involvement opportunities for students which will result in (1) a generation of young people who are accurately and adequately informed about the environment, (2) a society that is aware of the kinds and nature of the health problems which are associated with living in a group, (3) an awareness of the methods for finding solutions to these health problems and involvement in effecting solutions for them, and (4) an awareness of the potentials of their environment.

To adequately bring about the accomplishment of these goals the epidemiological approach to learning and problem-solving is used. Public health problems must be considered from the physical psychological, and sociological viewpoints. The basic principles of public health practice are kept in proper perspective with the nature of the health affair. In addition, the kinds of public health efforts currently being used are considered and evaluated. Each student is encouraged to consider and create other, more effective, ways of dealing with our most critical public health problems. He is further encouraged to help to develop an environment in which man may survive, function, and progress under the most optimal state of efficiency and effectiveness.

Outcomes

Students in grades 10, 11, and 12 should:

- develop an understanding of the attitude and actions of governments relative to our major environmental and public health problems.
- become aware of the essential principles of epidemiology and ecology which are relevant to the critical public health affairs.
- understand the complexities involved in the improvement of the environment and in the control of sanitary practices.
- become aware of and appreciate the complex health problems related to community health practices.
- explore and develop solutions to the environmental and public health problems.
- become involved in improving the environment.
- develop an understanding and appreciation of the necessity for each individual to conserve and utilize our resources (including human) most effectively.
- become aware of the methods used in public health research.

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AND LEARNING ACTIVI
I. Introduction		
A. History	Throughout history, man's health status has been directly related to his environment. The health of a community has been to a great extent directly related to its changing environment. Present public health practice has its genesis in history. Sound planning for the future of public health lies with evaluation of the past, related to the present.	Choose a health pro either historical current, and discus it was a health pro at one time but not problem at another Choose a time peri within the history the community and d scribe the health p lems of that commun at that time. Why was the communi having those health problems? Describe relevant factors. problems do we stil have? How have conditions changed so that tho health problems no exist? Can they re Explain. What techn helps to eliminate
B. Definition of public health practice	Public health practice includes: - the scientific diagnosis and treatment of groups of people - the prevention of	Create an ideal comm from a public healt frame of reference. What factors would h to be considered?

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
Choose a health problem, either historical or current, and discuss why it was a health problem at one time but not a problem at another time. Choose a time period within the history of the community and describe the health problems of that community at that time. Why was the community having those health problems? Describe the relevant factors. What problems do we still have? How have conditions changed so that those health problems no longer exist? Can they return? Explain. What technology helps to eliminate it?	See the following references for a brief description of the most relevant events in the historical development of public health: - "A bookshelf on the history and philosophy of public health," by J. J. Hanlon, et al, American Journal of Public Health, April 1960. - Mirage of health, by R. J. Dubos, New York. Harper & Row. 1959. - A history of public health, by G. Rosen, New York. 1958. - Principles of public health administration, by J. J. Hanlon, 5th edition, Chapters 1 & 2. C. V. Mosby.
Create an ideal community from a public health frame of reference. What factors would have to be considered?	Public health may be defined in many ways. Some definitions include a reference to the complex activities of public health along with the

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS
	unhealthful environments and the creation of a healthful envirnment
	Health is "A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." (World Health Organization)

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SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

- sanitary conditions
- medical facilities
- health personnel
- refuse disposal facilities
- prevention and control of disease
- geriatrics

Take photos of existing conditions in your area. Compare what exists with your "ideal community."

Create collages or mobiles depicting a "healthy" person; a healthful environment; the individual's role or responsibility.

SUPPLEMENTARY INFORMATION FOR TEACHERS

relevant goals. An often quoted definition which includes guidelines for the development of public health practices is "Public Health is the science and the art of preventing disease, prolonging life and promoting physical and mental health and efficiency through organized community effort for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of medical and nursing service for the early diagnosis and preventive treatment of disease, and the development of the social machinery which will insure to every individual in the community a standard of living adequate for the maintenance of health; organizing these benefits in such fashion as to enable every citizen to realize his birthright of health and longevity." (Dr. C.E.A. Winslow)

See Hanlon, J.J., Ibid. pages 4 & 5 for more detailed definitions.

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TE AND LEARNING
II. Rationale for Man To Improve His Environment A. Need	The incidence of many diseases related to ecological factors are on the increase. The increase in health problems relating to human behavior is directly related to the increase in population. The quality of life is affected by the physical and psychological elements of pollution. An unhealthful environment is costly in terms of material and human resources, and may lead to more undesirable changes in the environment.	To improve o ment will be What evidenc that an impr ment is esse individual a well-being? Identify some which are cl to the way m What steps ne taken immedia improve the e What is the c is the cost i steps are not
B. Responsibility	Each person has a responsibility for improving the environment through personal behavior.	
1. societal	Solutions to environmental health problems must be developed at all levels. Deterioration of the	If the environ be improved wh and agencies m that responsib

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
To improve our environment will be expensive. What evidence do we have that an improved environment is essential for individual and social well-being? Identify some diseases which are closely related to the way man lives. What steps need to be taken immediately to improve the environment? What is the cost? What is the cost if these steps are not taken?	We, as a people, need to address ourselves immediately to the kinds of public and environmental health problems that confront us today. With the increase in population has come an increase in the numbers and kinds of health problems affecting the quality of life of people. Pollution of all kinds — air, land, and water — is reaching such proportions that unless we deal with the problems now, much of our land will become uninhabitable within the next 20-30 years. Americans are taking from the natural resources at such a pace that by the year 2000 we will have exhausted many of the sources which make us a rich nation. In addition, our water and air are becoming unfit for our consumption. See Strand IV, World Health, grades 10, 11, 12.
If the environment must be improved what people and agencies must assume that responsibility?	It is the responsibility of public health personnel, and those in education, to bring about a reversal of this

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS
	environment is occurring as a result of actions of both public and private sections of society.
2. individual	Each individual must ultimately bear most of the burden, including moral and financial responsibility for improving the environment.
	The quality of the environment is also an international problem, and, as such, must be dealt with on that level.
C. Causes of environmental health problems	Environmental health is now a problem because in the past not enough consideration was given to the consequences of our actions.
	All facets of the environment are interrelated; physical, biological, and social. Any change in one factor produces a change in other factors.

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SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

Are we, individually and collectively, willing to make the necessary effort to guarantee the efficient survival of the human race? What factors must be considered? What efforts are essential?

See Strand IV, World Health, grades 10, 11, 12.

Identify the factors related to why our environmental deterioration has become a crisis only recently.

SUPPLEMENTARY INFORMATION FOR TEACHERS

trend with cooperation from each individual. Efforts must be concentrated on such critical areas as:

- air pollution
- water pollution
- health problems of youth, of the aged
- nutrition--food supplies and sources
- housing
- drug and chemical control
- disease prevention and control, especially of chronic and venereal disease
- pest control
- health education
- acquiring and disseminating accurate knowledge through research and education respectively

Environment includes those elements which are provided by nature and those created and introduced by man. Man's contribution may not only improve the environment but may result in pollution or other health hazards. Prevention of further destruction of the environment lies with careful evaluation and recognition of the consequences of our actions. We need to carefully define what

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SU AN
1. population	Environmental pollution is basically the result of rapid increases in the population without sufficient awareness of the consequences.	Wh th la an su
		Wha no in yea cor Wha no to lut nee
2. productivity	Productivity in industrial nations is increasing rapidly; this causes acceleration in industrial pollution, and individual waste.	Is a r or Exp Is his

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
	constitutes progress, and consider man's ability to adapt to his developments of and alternatives to the environment.
What eventual effect will the rapid growth of population have on plant and animal resources that sustain life?	The population explosion is producing increases in pollution through increases in human wastes, garbage, and products which become waste, e.g., automobiles. Demands on available land for commercial facilities, home, and recreation are also increasing.
What new forms of technology have been invented in the past 10 or 20 years? How have these contributed to pollution? What new forms of technology have been developed to help to alleviate pollution? What else is needed?	Population concentration in urban and suburban areas increases friction among people and may contribute to apathy toward the social and physical environment.
Is the population increase a result of the natural or manmade environment? Explain. Is man losing control of his environment? Explain.	Ecology is the interrelationship of living things with the natural as well as the manmade environment (e.g., the circumstances under which diseases occur, where diseases tend to flourish and where they do not).

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS
III. Physical Environment	
A. Water	In order for man to survive there must be a sufficient supply of suitable water, not only for man, but for all other life. The constant technological growth has tremendously increased the demand on the available water supply.

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
How much consideration should be given to industry's claim that drastic and expensive pollution control would create economic hardships for the industrialist? As we consider approaches to recreating a healthful environment, are there any factors we must consider with respect to the types of solutions we propose? Explain. Read: Rachel Carson's The silent spring. F. Graham's Since silent spring.	There are many factors in our environment which both help us to function and hinder our ability to function. DDT is an example of manmade environment and bacteria are examples of the natural environment which are both beneficial and harmful to man.
Refer to Public Health Publications: - "The struggle for clean water" - "Focus on clean water" Have students keep a list of the way they use water, and the approximate volume they use for a 24-hour period. Find an average, and then calculate the amount of water used by individuals in your community.	The amount of water we use is dependent on the number of modern conveniences we own and how much we use them, along with the number of people in the given geographic area. To meet the overall needs of an average community, the waterplant supplies approximately 140 gallons of water per person per day. Factories use water in astonishing amounts -- 1400

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTE AND LEAR
		Find out ing lett businesss the clas nesses a water.
1. sources of water	The total amount of water existing around, on, and in our planet has never changed nor will it ever, as far as we can foresee.	Emphasiz the eart system w water by design a a spacec the wate earth an craft to need for fication water.
	Communities have devised various means for obtaining pure water, or of purifying it for human consumption.	Find out water the for its s them, and this type serves th is it fr cycle whe naturally not, how it?
	Man must constantly be alert to changes in the purity of his water sources.	Have inte build mod types of processes

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SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

Find out, either by writing letters or inviting businessmen to speak to the class, how area businesses and industries use water.

Emphasize the fact that the earth is a closed system with respect to water by having students design a water cycle for a spacecraft. Compare the water cycles for the earth and for a spacecraft to point out the need for reuse and purification of existing water.

Find out what sources of water the community uses for its supply. Visit them, and analyse why this type of source best serves the purpose, i.e., is it from a point in the cycle where water is naturally pure and, if not, how does man purify it?

Have interested students build models of various types of purification processes.

SUPPLEMENTARY INFORMATION FOR TEACHERS

gallons to produce a dollar's worth of steel, for example and nearly 200 gallons for a dollar's worth of paper.

Man's continued water supply depends upon how he uses it for personal and industrial needs. In addition, the available supply is determined by how much is used and our ability to restore it to usable form after pollution.

Some sources of water frequently used by man are rivers, drilled wells, natural lakes and springs, and in the future, desalinated ocean water.

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS
2. **quality of water**	Clean water is water of such characteristics or quality suitable for its intended best usage. Polluted water is water of such characteristics or quality which renders it unfit or impaired for its intended best usage.
3. **sources of pollution**	Sources of water pollution are many, most are a result of man's technology, carelessness, and thoughtless activities.
	The following are major sources of water pollution: •industrial waste •individual wastes •domestic wastes •agricultural wastes •recreational activities •electrical generating plants

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

Invite a representative of the community's government to come and describe how the purity of the community's water supply is maintained and tested.

Determine what types of pollutants render water unsuitable for a particular use. How extensive is this form of pollution? Is there a threat to h health of people in this community?

Have students record by camera, evidence of water pollution in bodies of water in and around the community. Students should determine where the pollution is entering the body of water. What is the community doing about it? Is the community aware of it?

Have students research the causes of water pollution by:

- following local newspaper articles
- reading magazine articles
- radio and TV reports
- personal observation
- interviews with industrialists and others

SUPPLEMENTARY INFORMATION FOR TEACHERS

Public health law sets the stage for the legal interpretation of polluted waters. The qualities and properties of water which indicate a polluted condition include these which are actually or potentially deleterious, harmful, detrimental or injurious to the public health, safety or welfare; to terrestrial or aquatic life or the growth and propagation thereof; or to the use of such waters for domestic, commercial, industrial, agricultural, recreational, or other reasonable purposes, with respect to the various classes established.

Many things may pollute water. The following is a list of the more common water pollutants: (1) dissolved or entrained gases such as carbon dioxide, hydrogen sulfide, nitrogen, methane, etc., (2) dissolved minerals such as calcium, magnesium, sodium, iron, manganese, mercury, carbonates, bicarbonates, hydroxides, chlorides, (3) suspended and collodial materials such as protozoa, bacteria, algae, fungi, silt, pesticides, fertilizers,

REFERENCE

MAJOR UNDERSTANDINGS AND
FUNDAMENTAL CONCEPTS

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SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

Request permission to visit industries and businesses known to use water. Determine whether or not they are polluting, and ask what means they are using to avoid pollution.

Visit the local sewage treatment plant, and find out how effectively sewage is treated.

Invite to class a representative to describe requirements of sewage treatment and the costs involved.

Investigate the effect that individual septic tanks may have on ground water in the area.

How are septic systems tested? How effective is this technique.

If possible, have students visit an atomic electric plant, or invite a speaker to discuss the process and thermal effects on sources of water.

SUPPLEMENTARY INFORMATION FOR TEACHERS

and (4) radioactivity.

Industrial and commercial wastes include such things as oils, chemicals, alkalies, dyes, detergents, grit, metals, radioactives, and thermal variation.

Some common domestic wastes are human wastes, detergents, household greases and oils.

Sewage treatment takes a variety of forms which include:

Individual units
- septic tanks
- cesspools

Municipal treatment
- primary treatment
- secondary treatment
- tertiary treatment

Industrial treatment

Municipal sewage treatment should not interfere with the ecological balance. It should, however, render sewage inoffensive, prevent destruction of fish and wildlife, eliminate the danger of contaminating water supplies, bathing

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS
	Most of the increases in water pollution can be traced to basic changes in our society.
	Polluted water affects the economy, man's safety and health, and the total ecology.

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

Test the reaction of various fish and other aquatic life to temperature changes by warming and cooling the water.

Have students discuss how society's changes have contributed to the problem of water pollution.

List the changes and identify the factors causing pollution.

Invite a representative of the local health department to explain how polluted water can increase the threat of an outbreak of a number of diseases. Identify these diseases or other health hazards.

Invite a member of the

SUPPLEMENTARY INFORMATION FOR TEACHERS

areas, shellfish areas, etc.

Problems with municipal sewage treatment may result from treatment plants designed for communities with limited populations, but because of population growth are no longer capable of adequate service. In addition, some communities do not want to spend money to install up-to-date treatment facilities.

Consequently, some factors which contribute to water pollution are the result of the tremendous growth of population, industry, and commerce; rapid technological developments, with increased use of chemicals, synthetics, and pesticides; and lack of law enforcement.

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS
4. water pollution abatement and control	There are both federal and state regulations and laws governing water pollution.
	Communities have the responsibility to protect their waters from contamination, and to work with other areas in preventing contamination of common waters.

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SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

New York State Environmental Conservation Department to explain the effects of water pollution on wildlife.

Set up several balanced aquariums and, after they are well established, add trace amounts of various typical water pollutants, e.g., metal ions, nitrates, phosphates, detergents, etc. Note effects on animal and plant life.

Keep track of proposed legislation on pollution, and write letters to legislators to make them aware of student's attitudes and desires.

As an independent study project, have one or more students study the cooperation between New York and Vermont in protecting Lake Champlain, and other states for the Delaware River and Lake Erie. Report to class.

Find out what local laws, if any, apply to bodies of water wholly within the community. Is there

SUPPLEMENTARY INFORMATION FOR TEACHERS

Key water pollution control acts were enacted in 1948 and 1956. These acts authorized the United States Public Health Service to initiate comprehensive programs to solve the problem of water pollution. This was to be carried out in cooperation with states, agencies, and industry. The acts specifically mentioned that all water uses should be considered. Federal grants were made available. Technical assistance was made available to states. Enforcement of laws was left to the states. The Public Health Services established

REFERENCE

MAJOR UNDERSTANDINGS AND
FUNDAMENTAL CONCEPTS

There is an immediate need for international cooperation regarding the use of oceans as dumping grounds.

Because of the many agencies involved in pollution control it is helpful to understand the jurisdictions of each.

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

some agency in the community responsible for maintaining and checking on the purity of this water?

Discuss: Should international pollution be within the domain of the United Nations?

What cooperation among nations currently exists? How can it be improved?

Why are some cities allowed to dump their garbage in the ocean? What is the effect on marine life?

As a project, one or more students may construct a chart showing all political agencies involved in pollution control and their interrelationships.

Encourage students to:
- write to legislators
- call attention of authorities to pollution
- form and support civic action groups

SUPPLEMENTARY INFORMATION FOR TEACHERS

a water pollution control program with ten field units in the large drainage basic areas. In 1962 Congress provided for the establishment of research laboratories throughout the country.

The following additional acts were passed:
- Water Quality Act 1965
- Water Resources Planning Act 1965
- Economic Development Act 1965
- Clean Water Act 1966

See Strand IV World Health, grades 10, 11, 12.

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTE AND LEAR
		·initiat program ·become ronment
B. Air	Most forms of life are dependent upon a constant supply of clean air.	Students the leng ple can food, wa How much average inhale ea enough ox life. Discuss t animals v
2. source of clean air	Our only source of clean air is the atmosphere. Mild, short-term pollution can become free of pollutants dispersion, diffusion, and dilution.	Have a me explain a around th size the same air constantl temporary with inve frequentl
3. definition of polluted air	Air pollution is the presence in the ambient atmosphere of foreign	Discuss th istics of would cal

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
•initiate new action programs •become involved in environmental problems.	
Students should contrast the lengths of time people can live without food, water, or air.	Reference for teachers: A.C. Stern, Air Pollution (Volume I, II, and III); Academic Press, 1968. (This work covers the entire subject of air pollution, its effects, and abatement.)
How much air does the average adult need to inhale each day to get enough oxygen to sustain life.	
Discuss the needs of animals versus vegetation.	
Have a meteorologist explain air movements around the earth. Emphasize the fact that the same air recirculates constantly, but that temporary stagnations with inversions occur frequently.	Inversion is a meteorologic condition produced whenever a layer of warm air traps cooler air at a lower level and prevents it from rising and carrying away suspended pollutants. Stagnant air masses occur when polar high pressure systems moving southeastward stop moving toward the equator and become incorporated in subtropical high pressure systems.
Discuss the characteristics of air that you would call polluted.	Natural, clean, dry air contains by volume: oxygen 20.92%

REFERENCE

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS

substances put there by the activities of man or nature, in concentrations sufficient to interfere, directly or indirectly, with comfort, safety, or health, or with the full use and enjoyment of property.

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

Have students speculate on possible sources of some of the pollutants listed.

SUPPLEMENTARY INFORMATION FOR TEACHERS

nitrogen	78.14%
carbon dioxide	.04%
argon, etc.	.90%

Manmade air pollutants are of two major kinds:

1. Primary
   - sulfur dioxide
   - carbon monoxide
   - hydrocarbons
   - nitric oxide
   - fluorides
   - toxic metals and their compounds
   - particulates; e.g., ash, unburned fuel, pesticides, demolition dusts, asbestos and mill dusts.
2. Secondary
   - sulfuric acid mist
   - ozone and other oxidants

Secondary pollutants are the result of change in one pollutant or reactions between pollutants in the atmosphere.

Natural air pollutants include:

- pollens
- spores
- dust
- bacteria

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TE AND LEARNING
4. causes of air pollution	The causes of air pollution are (1) natural, and part of the normal state of the environment, and (2) artificial, as a consequence of man's activities.	Have students pollens and s exposing grea scope slides. should be exa 100 x or 400 cation for id of pollens an collected
	Air pollution is often the result of gross waste of natural resources.	Industrial po might be the a research st or more studen Example: Visi power generati (coal or oil request a clas through the en ation, and int plant superint asking for the information: the stacks in per minute, te of the gas as the stacks, an sulfur dioxide
	Photochemistry can change primary pollutants,	Explain what h NO_2, a product

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
	Natural air may also contain water vapor up to the saturation level.
Have students sample for pollens and spores by exposing greased microscope slides. Slides should be examined at 100 x or 400 x magnification for identification of pollens and spores collected	Reference: D.C. Hunter and H.C. Wohlers, Air pollution experiments for junior and senior high school science classes. APCA, 1969. (Experiments cover a variety of topics on air pollution.) G.T. Brown, Pollen-Slide Studies, Charles C. Thomas (Publisher), 1949.
Industrial pollutants might be the subject for a research study for one or more students. Example: Visit a nearby power generating plant (coal or oil burning), request a class tour through the entire operation, and interview the plant superintendent, asking for the following information: Gas flow up the stacks in cubic feet per minute, temperature of the gas as it leaves the stacks, and percent of sulfur dioxide in the gas.	Roughly 50 percent of air pollution results from the activities of individuals. The remainder can be attributed to industry and commerce.
Explain what happens to NO_2, a product of many	Reference: P.S. Leighton, Photochemistry of air

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS
	causing greater effects on health.
5. effects of air pollution	Air pollution has a severe effect on health.

ESTED TEACHING AIDS
LEARNING ACTIVITIES

-temperature combus-
processes. How does
r radiation change
into secondary pollu-
s? How is SO_2 in the
sphere converted to
uric acid mist?

ain the nature of
utants from internal
ustion engines.

the class to a nearby
ital where there are
ients with chronic
nchitis and emphysema.

resident physician to
w X rays of respiratory
tems of such patients.
e him tell students
ut the diseases and the
fering of those strick-

ow may these diseases
e prevented?
hat kinds of treat-
ent are available and
hat is the prognosis?

iew the causes of
rious respiratory dis-
es linked, or suspected

SUPPLEMENTARY INFORMATION FOR TEACHERS

pollution. Academic Press, 1961.

How SO_2 is converted into sulfuric acid.

$SO_2 + O_3 \rightarrow SO_3 + O_2$

$SO_3 + H_2O \rightarrow H_2SO_4$

Reference: "Motor vehicles, Air Pollution and Health." House Document No. 489, United States Department of Health, Education and Welfare, 1962.

The major respiratory ailments resulting from air pollution are:
- acute respiratory infections
- chronic bronchitis
- pneumonary emphysema
- bronchial asthma

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SU AN
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	Air pollution causes economic loss to individuals and to society.	Id ki lo co of ai
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TANDINGS AND L CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
	of being linked, with air pollution.	
	Have some students report to the class on changes in health during the Donora, Pennsylvania air pollution episode of 1948. What are some more recent examples?	The following summarizes some of the effects of pollution which can be seen immediately: Health - absenteeism from school and work; medical and hospital costs increased.
n causes s to indi- to society.	Identify and discuss the kinds and extent of losses to individuals and communities as a result of intense or continuous air pollution. Obtain several appropriate movies on various aspects of air pollution. Have groups of students review and evaluate the content of these presentations in relation to the concept being developed.	Materials - soiling of clothing and painted surfaces, degradation of building materials, fading of dyes, cracking of rubber, corrosion of metals, destruction of nylon, loss of tensile strength in cotton. Vegetation - injury to leafy vegetables, killing and stunting of evergreens and deciduous trees, effect on crop yields. Animals - effect of fluorides in forage on cattle and sheep. See the following sources: - New York State Department of Environmental Conservation reports on effects of air pollution on materials.

REFERENCE	MAJOR UNDERSTANDINGS AN FUNDAMENTAL CONCEPTS
6. air pollution abatement and control	At present, there are laws and regulations at various governmental levels. Before society can act against air pollution (or all other forms of pollution), individuals must be convinced that its abatement and control is needed, because society is a collection of individuals.

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

Have an engineer from your county air pollution control agency talk to the class on control activities.

Show films, such as "One Mile Up," "With Each Breath," etc., available from New York State Department of Environmental Conservation, 50 Wolf Road, Albany, New York

SUPPLEMENTARY INFORMATION FOR TEACHERS

- I. J. Hindawi, Air pollution injury to vegetation; United States Department of Health, Education and Welfare, 1970.
- Hobbs and Merriman, Fluorosis in beef cattle, Bull. 351, University of Tennessee, Agricultural Experiment Station.

- Air Pollution Control Laws of New York State, and various Rules and Regulations.
- New York State Department of Environmental Conservation reports of air quality data.

The following identifies various areas concerned with air and air pollution control:

- Ambient air quality standards classification system
- Emission standards
- Fuel standards (for sulfur or lead content).
- Various rules and regulations, such as open burning, incinerator operation, control devices for motor vehicle emissions, smoke shade permitted, etc.
- Tax incentives

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS
	Abatement of air pollution can conserve raw materials (natural resources) for the benefit of the health and welfare of future generations.
C. Radiation 1. definition	There are several different types of radiation commonly found in our environment.
2. uses	Radiation, and the accompanying energy, is a valuable tool which can be controlled and made to serve in the best interests of men.

NGS AND EPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		• Federal grants • Review of plans for construction or modifications • Permits to construct or operate
ollu- raw e lth ure	Have class consider and discuss possible uses for products of air pollution abatement processes, such as fly ash, sulfur dioxide, and solvent vapors. Compute possible conservation of natural resources and discuss the effect on health and , welfare of future generations.	See the following sources: - National Ash Association 1819 H Street, Northwest, Washington, D.C. 20006. - *Environmental Science and Technology*, a publication of the American Chemical Society. - Air pollution experiments for junior and senior high school science classes.
dif- di- nd in	Identify the various types of radiation commonly found and describe the nature of radiation emission.	In general, radiation is "the process by which energy is emitted from molecules and atoms resulting from internal change," and "that which is radiated." Briefly, radiation is any emission of energy from a point of origin.
y, is ich and he men.		See: United States Atomic Energy Commission Series, *On understanding the atom*, Division of Technical Information, Washington, D.C. or *Ionizing radiation*, published by the American Public Health Association.

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS
3. sources of radiation contamination	Man is exposed to various natural and man-made sources of radiation, much of which is undesirable in terms of health.
4. effects of radiation contamination	Exposure to radiation can have deleterious effects on the human body as well as genetic effects which may affect succeeding generations.

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

Identify and discuss which of the sources of energy are serving beneficial purposes, and which are not.

Discuss risk versus beneficial aspects of all radiation.

Find out what atomic energy electric producers are doing to contribute to or control pollution.

Read and discuss in class:
- accounts in magazines and newspapers of the results of radiological accidents
- accounts of the effect of bombing in Hiroshima and Nagasaki in World War II

SUPPLEMENTARY INFORMATION FOR TEACHERS

Sources of radiation include:
- natural (rocks, earth, plants, and metals)
- man-made (X rays and cobalt)

Some uses of radiation in industry are to produce electricity, gauge thickness of materials, and detect leaks in pipes. Some uses in agriculture are to increase plant production, control reproduction of livestock and pests, and identify patterns of growth in plants and animals. In addition, radiation has invaluable uses in medicine to treat, diagnose, and prevent disease. Examples include treatment of cancer, detection of dental problems, location of foreign objects in the body, etc.

Health problems from radiation

Radiation can cause immediate sickness, or it can have long-range effects such as increasing one's chances of getting cancer or causing malformed or retarded children during pregnancy. Exposure may

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGG AND
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	As with humans, other forms of life suffer from exposure to radiation.	Invit to de radic water
5. prevention of radiation exposure	Radiation exposure from manmade sources can be eliminated with sufficiently strict controls and reasonable care during use.	Find Atomi sets ation
	There are State and Federal agencies working cooperatively to ensure the safe and efficient use of radiation.	Invit local to di taken publi to ra and r
		Invit cian funct machi

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troversy over trans-
ting radiological
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tion on human and
l genes? Discuss
ossible implications
future generations.

e a conservationist
escribe the effect of
oactive polluted
r on marine life.

out what limits the
ic Energy Commission
for allowable radi-
n.

te a speaker from the
l health department
discuss procedures
en to protect the
lic from overexposure
radiation from X rays
radioactive materials.

ite an X-ray techni-
n to explain the
ctions of an X-ray
hine and what

SUPPLEMENTARY INFORMATION FOR TEACHERS

result from radiation accidents in transporting radioactive material through communities, disposing of radioactive wastes, and increasing uses of radiation with increased exposure levels.

At least half of the human exposure to radiation in New York State comes from the necessary use of medical and dental X-ray equipment and radioactive materials. These are used to diagnose and treat disease. The benefits that result from medical exposure to radiation certainly outweigh the risks. If medical uses or radiation were discontinued, thousands of per sons would die of diseases detectable (early) only by this means.

The Sanitary Code of the New York State Health Department prohibits persons not licensed in the use of radiation from applying it to people. Professional persons trained in the use of X-ray equipment are aware of the precautions which must be

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MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS

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SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

precautions must be used.

Have students find out what agencies exist and who gives them authority to control the use of radiation.
- How effective are they?
- What else needs to be done?
- Are there any implications for the future? Explain.

SUPPLEMENTARY INFORMATION FOR TEACHERS

taken. Dangers are thus minimized.

The New York State Sanitary Code also establishes standards for radiation control. The code affects X-ray machine operators, patients, and occupants of nearby areas. It requires that all radiation installations in New York State be registered and inspected.

The New York State Department of Environmental Conservation, in cooperation with Federal agencies and private industry, conducts surveys, and uses monitoring devices to determine the amount of radiation in soil, water, and other materials. New York State has a burial site for radioactive waste disposal.

Fallout from atomic weapons testing is continually measured by the New York State Department of Health at water, air, and rain fallout stations located throughout New York State. Reports are sent to the Public Health Service.

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED AND LEARNI
D. Pesticides		
1. definition	Pesticides are substances intended to kill undesirable pests (insects, plants, and animals). They include insecticides and herbicides.	Have stude the substa used for p
2. rationale for use of pesticides	There is a real and significant need for the judicious use of pesticides because there is, in turn, the need for increased food supply and the need to solve health problems relating to pests.	Invite a f cultural a how the us can increa tivity of of land. other circ justify th killing ag
3. dangers involved in using pesticides	There are three major dangers associated with the use of pesticides, namely:	See: Rach The silent

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
	For additional resources on radiological health, write to: - New York State Department of Health - Radiological Health Programs, 845 Central Avenue, Albany, New York 12208 - United States Atomic Energy Commission, Washington, D. C. 20545
Have students identify the substances commonly used for pesticides. Invite a farmer or agricultural agent to explain how the use of pesticides can increase the productivity of a given amount of land. Discuss what other circumstances might justify the use of various killing agents.	Pesticides are substances used to kill plants or animals which interfere with man's comfort, health, or activities. Insecticides are pesticides used to kill insects. Food-visiting insects are the housefly, cockroach, ant, and flour beetle. Examples of biting and sucking insects are the mosquito, bedbug, tick, and flea. In addition, there are the fabric-damaging insects, e.g., the carpet beetle, clothes moth, and silverfish; and finally the insects which destroy crops, e.g., coddling moth and apple maggot.
See: Rachel Carson, The silent spring.	The safe use of pesticides requires that each person who uses them read the labels; they are stored in

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS
	1. the possibility of polluting water supplies 2. combining with plant and animal food sources 3. ecological imbalance may result
4. effective controls in the use of pesticides	Enforced common sense and a cautious attitude can eliminate or minimize many of the dangers involved in the use of pesticides.
E. Solid wastes	Because of our technology and a consumption-oriented society, we are producing a tremendous amount of solid waste materials.

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
Have students do research to find out why certain chemicals, instead of being eliminated or broken down, remain in the body and collect there in high concentrations.	safe places; they are used property, i.e., according to directions.
Discuss what laws should be written to control pesticide use, and who should be responsible - State, local, or Federal government.	Chemical substances used as pesticides include chlorinated hydrocarbons (DDT, herbicides), organic phosphorus compounds (sulfur, nicotine), and inorganic substances (copper sulfate, arsenate of lead).
Find out what legal requirements presently exist which must be met before a pesticide may be marketed.	Pesticides which are species-specific and biodegradable make much safer pesticides.
Are there controls regarding who may use certain pesticides? Why?	
Debate: The benefits of DDT to man outweigh its disadvantages. Should its use be abandoned, limited, or expanded?	
Conduct a survey to find out the kinds of disposable items that students, parents, and relatives knew in their childhood. Compare them with those of today.	Some of the major methods of disposal of solid wastes are: • sanitary land fills • incineration • open dumping - (not recommended as a sanitary method).

REFERENCE	MAJOR UNDERSTANDINGS A FUNDAMENTAL CONCEPTS
	The main sources of solid waste are domest and industrial.

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

Have students visit local sanitary landfill sites, junk yards, and dumps to find out the nature of the refuse, its extent, and its sources.

Have students find out how these processes are handled in their community. Evaluate their effectiveness.

- Is the area of dumping kept in a sanitary condition?
- Is incineration of combustibles causing air pollution?
- Is waste and garbage allowed to accumulate for long periods around homes, apartments, and buildings?
- Are refuse facilities of the community creating visible pollution?

Have students find out what municipal authorities are in charge of refuse disposal and invite them to discuss the problems and the solutions.

Have students discuss

SUPPLEMENTARY INFORMATION FOR TEACHERS

Refer to the following:
Do you need a sanitary landfill?
United States Department of Health, Education and Welfare, P.H.S. publication No. 1012, 1963. $.05.

Health News, "The reality of rubbish," August 1969, pp. 6 and 7.

The composition by weight of typical East Coast municipal refuse is:

Miscellaneous paper	- 25%
Newspaper	- 14%
Garbage	- 12%
Glass, ceramic, and stone	- 10%
Grass and dirt	- 10%
Metals	- 8%
Wood	- 7%
Cardboard	- 7%
Textiles	- 3%
Plastic film	- 2%
Leather, rubber	- 2%

The methods used to dispose of garbage follow. The percentages represent proportions by weight:

Open dumping	- 73%
Incineration	- 15%
Sanitary landfill	- 8%

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGG AND
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	Because of the increasing rate of production of solid waste, it is becoming imperative that we establish and enforce regulations that will protect our environment.	Have what and pres whet adeq
		Have some ical wast remo crea ing up reus etc.

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

the pros and cons of feeding garbage to hogs.

Read: "Where do we put our junk?" Health News, August 1969.

Discuss: Are home garbage disposal units the best way of eliminating garbage? What effect do they have on water pollution? Sewage treatment?

Interested students might make a movie of some of the serious shortcomings of the handling of refuse in the community.

Have students find out what municipal, county, and State regulations presently exist. Discuss whether or not these are adequate.

Have students research some areas of technological improvements in waste disposal, such as removing metals from junk, creating fuel by compressing combustibles, breaking up glass containers for reuse in glassmaking, etc.

SUPPLEMENTARY INFORMATION FOR TEACHERS

Salvage - 3%
Composting - 1%

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SU AN
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		Di an wa th go
IV. Psychological Aspects of Health		
A. Housing	The quality of life in psychological terms is partly determined by the quality of the immediate physical environment.	Ha an te gh In it an an
	Physical conditions such as space, sanitation, and services (heat, electricity, water) may result in serious psychological stress, if inadequate.	Ha ne of st or
		Ha an

NGS AND CEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
	Discuss the advantages and disadvantages of various methods of garbage and refuse reduction and disposal: • sanitary landfill • open dumping • incineration • composting Discuss: The control and regulation of solid waste disposal should be the province of state governments.	
fe in ms is by e l ns nita- s y, in ical uate.	Have students research and discuss the characteristics of a slum and ghetto environment. Include physical facilities and overcrowding, and the psychological and physical effects. Have students research newspapers on the effects of the sanitation workers strike in New York City, or any large city. Have students research and discuss the problem	The teacher may find the following references helpful for basic background information: "Humanizing the city," "Fair play in housing," and "Why the ghetto must go" Public Affairs Pamphlet No. 423 Public Affairs Pamphlets 381 Park Avenue South, New York, N. Y. 10016.

REFERENCE	MAJOR UNDERSTANDINGS A FUNDAMENTAL CONCEPTS

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
of rats in a slum environment. What are the health implications?	
Discuss: The economics of the past and current slum environment that have encouraged commercial interests, (landlords, chain food stores, furniture stores, appliance stores, etc.) to contribute to the deterioration of living conditions in such areas.	
Discuss: How current slum and ghetto conditions contribute to • crime • riots • other social disturbances	Read: *About the poor - some facts and fiction*, by Elizabeth Herzog. United States Department of Health, Education and Welfare
Discuss: How current slum and ghetto conditions contribute to: • average education attainment • stress-related diseases, heart attacks, etc. • mental illness • drug abuse	*The school children growing up in the slums,* by Mary Frances Greene and Orletta Ryan. Signet Books. *Low income life styles*, by Lola Irelan, United States Department of Health, Education and Welfare.
Discuss: • the role of each member of the "typical" middle class family	

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS
B. Insect, vermin, and vector control	
1. insect control	The modern concept of insect control focuses on proper attention to sanitary practices along with judicious use of insecticides.

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

- the role of each member of the "typical" slum family
- contrast the functioning of these two family units (The class may wish to define in their terms what a "typical" family is.)

Discuss:
- community participation
- community control
- community conflict
- conflict between community insistence and professional resistance

See the World Health Organization program regarding world pest control, especially in regards to anopheles mosquito.

SUPPLEMENTARY INFORMATION FOR TEACHERS

For background information see: Insect pest, by George S. Fichter, Golden Press, New York.

For more complete information on rodents and their control see: Control of domestic rats and mice United States Department of Health, Education and Welfare, Public Health Service Consumer Protection and Environmental Control Commission, Rockville, Maryland 20852

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS
2. rat control	communities can engage in rat control programs and thus effectively prevent contaminations, disease, and death caused by the common rat.

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SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

Have the students survey the Community and find out:

- What is being done to control insects and vermin?
- What problems are caused by insects and vermin?

Have students visit the local supermarket and request information on measures being taken to control insects and rats.

Read: The plague, by Camus.

What new kinds of rat problems are created by sanitary landfills?

Are people in your community being taught how to prevent rats from breeding? Why?

Discuss with the local health department, sanitarian, and department of agriculture representatives the local measures that are being taken to eliminate insects and rodents.

SUPPLEMENTARY INFORMATION FOR TEACHERS

Source of information: Ohio Department of Health publication, Rat control, prevent disease, 1963.

The rat is a major health problem in our cities, especially in the ghettos. It is a carrier of disease and death. The filthy creature contaminates everything it touches. Rats destroy millions of dollars worth of food and property every year.

Although the common rat has no redeeming qualities, man continues to harbor and feed him through his carelessness and apathy.

As carriers of disease, rats have gnawed themselves an infamous niche in world history. The great plagues of the middle ages were spread by fleas carried by rats. Even today the common house rat is a constant threat as a carrier of disease.

Among other diseases associated with rats are typhus fever, food poisoning, Weil's disease, rat

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTE AND LEAR
		Have stu regardin
		Read and in histo ancient) spread b vermin.
		What ef taken i to educ about p trolled and rod
		Should communi bait a What i ical a killin duals?
C. Occupational health	Diseases caused by dust inhalation, and particularly by mineral and organic particles, provide a striking example of the ever-present hazards of the environment to man.	Discus · ways limi ron occ · the by mem pat haz
	At work, man is often subjected to a hostile environment.	Visi indu

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

Have students do surveys regarding these problems.

Read and discuss accounts in history (recent and ancient) of diseases spread by insects and vermin.

What efforts are being taken in your community to educate the public about problems of uncontrolled spread of insects and rodents?

Should people in your community be taught to bait and trap rats? Why? What is the most economical and humane way of killing rats by individuals?

Discuss:
- ways man at work can limit or control environmental hazards in occupations
- the efforts being made by industry to protect men at work from occupational diseases or hazards

Visit various local, industrial, manufacturing,

SUPPLEMENTARY INFORMATION FOR TEACHERS

bite fever, and trichinosis.

The damages from rats are staggering. Rats cost this country more than 2 billion dollars every year. They destroy more than 200 million bushels of grain each year.

The food service industry has a definite interest in control. Food service operation cannot be called safe if rats are on the premises. No matter how carefully food sanitation is practiced, the threat or rat-borne disease makes an entire food service operation potentially dangerous.

The most common industrial problem is occupational dermatitis.

Causative agents of this disease include petroleum products and greases, alkalies and cement, solvents, plants and wood, metals and metal plating, rubber and its compounds, paints, enamels, varnishes, acids, and acid fumes.

REFERENCE	MAJOR UNDERSTANDINGS FUNDAMENTAL CONCEPT
	Occupational diseases hazards are decreasin a result of research education and employe employee (management-labor) cooperation.

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
or processing establishments and see the various devices and aids being used to reduce environment hazards which may result in injury or disease.	See Appendix B for a complete list of agents. For more information and specific studies see: Parke, Davis and Company, *Patterns of disease*, January 1960. Silicosis is the number one occupational disease. Approximately 66 percent of cases occur in workers in mining industry, 28 percent in manufacturing, and 6 percent in all other forms of work.
Compare the incidence of certain diseases with a variety of occupations. Examples include: • cancer • heart disease • cirrhosis of liver • accidents • rheumatism • arthritis • alcoholism • drug addiction	See: Supplementary information for Teachers, "Asbestosis and cancer." Despite the accomplishments of dust control measures, silicosis is still the major occupational disease in the United States in terms of disability and compensation.
Read: "The scandal of death and injury in the mines," Benjamin A. Franklin, *New York Times Magazine*, March 30, 1969, pp. 25-129.	The reasons for the decline in occupational diseases may be attributed to expanding industrial medical services, better legislation, the development and

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGEST AND LEA
		"Leach childre the env Roffmon Health pp. 3ff
D. Noise	The increase in population and mechanization of our society is producing a corresponding increase in noise levels that is harmful to both our physical and emotional health. Noise contributes to fatigue and emotional tensions.	Obtain and det levels of the Determi put fro sources mobiles, tial ar areas. Discuss: United S to devel planes? Discuss: logical noise le beings? affect g
E. Land use	Land resources are finite. Some forms of land utilization destroy natural beauty.	Research, areas in decreasi At what Research the grow

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
"Leach poisoning and children - a disease of the environment," by Roffmon and Finberg, Health News, July 1969, pp. 3ff.	use of protective devices and continuous health and safety education.
Obtain a decibel meter and determine the noise levels of various sectors of the environment. Determine the noise output from specific sources - i.e., automobiles, crowds, residential areas, commercial areas.	The World Health Organization indicates that noise costs the United States about 4 billion dollars each year in accidents, absenteeism, inefficiency, and compensation payments.
Discuss: Should the United States continue to develop supersonic planes?	
Discuss: What psychological effects does high noise level have on human beings? How does it affect general health?	
Research: Are our land areas in a natural state decreasing or increasing? At what rate? Research: What has been the growth rate in usage	Increasing population, productivity, and standards of living have placed increasing demands upon land resources in the areas of commerce, housing, transportation, and recreation.

REFERENCE	MAJOR UNDERSTANDINGS A FUNDAMENTAL CONCEPTS

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SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

of the various recreation facilities such as beaches, parks, camping areas, etc.?

Research: Problems recently created concerning land use through the conflicting views of conservationist, State, and commercial interests, i.e.,
- the conversion of a portion of the Everglades for a new airport
- the creation of a dam in the Grand Canyon for added electrical and irrigation facilities
- the effort to build a power plant on the Hudson for the purpose of providing added electrical service

Discuss: Should a definition of pollution

SUPPLEMENTARY INFORMATION FOR TEACHERS

Only about 2 percent of the Nation's land area (about 101 million acres) has been preserved and only about 50 million acres of that is conserved as national parks.

Eighty species of wildlife that once lived in this country are now listed as extinct and another 78 species are in danger of becoming extinct.

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SU AN
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V. Sociological Aspects of Health A. Socioeconomic status related to health	Within societies, health-related behavior varies markedly.	Di er of
		Re chi lan Dis Wha wit men
	In almost every phase of health care and behavior, the poor behave differently from the more affluent sectors of American society.	Dis vie car med (Se str

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
include "uglification" of the landscape?	
Discuss: What is poverty? Is there a culture of poverty?	Poverty is usually defined in terms of income rather than in terms of living. See the following sources: - *Report of national advisory commission on civil disorder*, pp. 269-273. - *About the poor: some facts and some fiction*, Elizabeth Herzog, United States Department of Health, Education and Welfare, 1967. - *Poverty in New York City*, Research Department, Community Council of Greater New York.
Read: pp. 196-200, *Manchild in the promised land*, by Claude Brown. Discuss the life style. What are similarities with your life environment?	
Discuss: What are your views on free medical care for the aged or free medical care for the poor? (See Section VI of this strand.)	Premature births are more frequently found among mothers of lower economic groups. A high infant mortality rate is strongly associated with low income.

REFERENCE

MAJOR UNDERSTANDINGS AN
FUNDAMENTAL CONCEPTS

The beliefs and attitud
with which the poor ada
to a deprived existence
act, at the same time, to
help perpetuate their
deprivation.

The poor are more vulne
able to disease and les
able to cope with it th

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SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

Read and discuss: Poverty and health in the United States, Medical and Health Research Association of New York City, 40 North Street, New York, 1968.

Invite into class social workers, visiting nurses, doctors from the health department, and community action people to discuss their experiences in relation to this health problem.

Read: Poverty in the USA, Strouder Sweet, Public Affairs Pamphlet, No. 398.

Discuss: What is meant by self-fulfilling prophecy? How can preconceived ideas on the part of the poor and the dispensers of medical care help to substantiate notions held?

Read and discuss: Why the ghetto must go, Public Affairs Pamphlet, No. 423.

SUPPLEMENTARY INFORMATION FOR TEACHERS

Often the medical facilities and quality of physicians for the poor are under conditions that make a coordinated personal medical approach impossible even for the most conscientious physicians.

According to the New York State Department of Labor, 9.7 million families, or 20 percent of the families in the United States, are labeled as being poor or near poor. The poverty level is measured by a fixed standard of $3,600 for an urban family of four.

Suggested teacher reference: Chapter 5 in Dark ghetto by Kenneth Clark.

It is estimated that 5 percent of the poor children

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	St AN
	are those with sufficient incomes.	Wh ed
	The way the poor cope with health problems is traceable to both the material situation of poverty and to the social structure of poverty.	Re Ne Pr va De
	Poor health and lack of knowledge interlock.	Dis suc poc den tis pov • c • p t • m

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
	still have not been immunized against polio.
What part does health education play? Read and discuss: Health News, July 1968, "Health Problems of the Disadvantaged," New York State Department of Health.	The poor: • have less accurate information about health care - prevention and treatment • define illness differently - when you can't fulfill responsibilities you are sick • are less inclined to take preventive measures • delay longer in seeking health care • participate less in community health programs • are more likely to practice self-medication • tend to get different treatment than other socioeconomic classes The health of the poor, Irwin Blocke, Public Affairs Pamphlet, No. 435.
Discuss: Can there be such a thing as a healthy poor person? Have students research the statistics dealing with poverty and: • crime • poor housing - unsanitary conditions • mental illness	Special problems of the poor: • They are outside the private sector where ability to pay can bring higher grade medical care. • The problems of daily living are so overwhelming that health is of little concern.

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS
	Black America to a large extent is poor America
	To uplift the health of the poor, the community must be reshaped.
	There are political, social, economic, and cultural reasons why the poor lack an understanding and confidence in medical systems.

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

- underemployment
- educational levels
- doctor/patient ratios
- diets
- drug addiction
- number of people per square mile in ghettos as opposed to affluent areas

The relationship of stress and health:
Have a student report on The other America by Michael Harrington.

Study and discuss statistics in the Report of National Advisory Commission on Civil Disorders, pertaining to poverty and health.

Discuss: Are local governments less observant of poor health in poverty areas? Does poverty make people too alienated to seek help? Are the poor written off as unreachable?

Read and discuss: Growing up poor, pp. 27-40.
United States Department of Health, Education and Welfare.

SUPPLEMENTARY INFORMATION FOR TEACHERS

- Health facilities are often inaccessible or inadequate.
- Social and economic problems of slums are disease breeders.

According to the Social Security Administration, 40 percent of nonwhite households live below poverty level as opposed to 15 percent of white households, although there are more white than nonwhite poor.

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGEST AND LEA
B. Family patterns	Families of every socio-economic level need home conditions conducive to good health.	Discuss: physical help ens in the h relation these co health? Read: Th society, Discuss: • the wa school, home, e • whethe creatin spectat • electri have we tone of • the num student sion an ences t

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
	The heads of 61 percent of low income families have 8 years of education or less.
	See pamphlets on family life, social problems, health and science, and race relations available from: Public Affairs Pamphlets 381 Park Avenue South New York, New York 10016
Discuss: What are the physical conditions that help ensure good health in the home? Is there a relationship between these conditions and health?	Modern living has created problems for good physical and mental health in relation to: • physical fitness • mental illness • alienation • urbanization • family structure • modern conveniences • changing values
Read: The adolescent society, by James Coleman	
Discuss: • the way students get to school, church, friend's home, etc. • whether television is creating a nation of spectators • electric gadgets that have weakened the muscle tone of Americans • the number of hours students watch television and how it influences their lives	Read the studies on television and aggression done by Albert Bandura of Stanford University, Leonard Eron of University of Iowa, and Richard Walters of Waterloo University in Canada.

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS
C. Nutrition	Malnutrition is a problem of every socioeconomic class.
	There are millions of people in the United States that are undernourished and malnourished.
	Education and knowledge of proper nutrition along with economic dangers can bring about positive changes in individual diets.

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
• the changing nature of the neighborhood	
Debate: • the changing patterns of urbanization have lessened the opportunities of people to be exposed to differences • the small nuclear family is psychologically less healthy than the extended family unit.	
Research and discuss: The changing roles of members of the family.	
See Strand I, Nutrition, grades 7, 8, 9.	
What reasons can you give for studies that show that deficient diets are most often found among mothers and teenagers?	
Explain relationship of obesity and poverty. (starchy foods)	
Read and discuss: Hunger - "It's here too," by Carl Rowan and David Mozie, Reader's Digest, June 1, 1968, pp. 127-134. What are the stages of hunger?	In Hunger U.S.A., it is estimated that 10 - 14½ million may be faced with anemia, mental retardation, or premature death because of inadequate diets.

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	S A
		Re Ge mi Hu
	Malnutrition can rob the individual of his potential contribution to society.	Re Th Hu in ta
		Mo ba di Co Li
		Di ef on
VI. Gerontology and Geriatrics	Gerontology is the science of the problem of aging.	Di • •
	Geriatrics is the branch of medicine which treats the conditions peculiar to old age.	Wh he ag fe ge fe
A. Extent of the health problems of the aged	As a result of the greater number of people in the older age groups and the health problems which accompany this, public	Id re de pr a

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
Read findings by Senator George McGovern - Subcommittee on Nutrition and Human Needs.	
Read and discuss: The CBC documentary on Hunger in America, also in book form and commentary.	
Movie: Life in the balance, made by ESSO, distributed by Syracuse College of Forestry Film Library.	
Discuss: What are the effects of malnutrition on the individual?	
Distinguish between: • geriatrics and gerontology • senescence and senility What are the personal health concerns of the aging? What is the difference between the longevity of males and females? Why?	Gerontology is the scientific study of all aspects of the problems of aging. It includes the understanding of the significance of biological and sociological factors, the historical basis and implications, and the clinical approaches to treatment and control of health problems of aging.
Identify the factors related to the need to deal directly with the problems of the aged on a public health level.	Geriatrics is primarily concerned with the medical-clinical nature of the health problems related to aging and old age. It

health has had to change some of the emphasis of concern.

Most of the health problems related to old age are insidious and usually not diagnosed until they have become advanced and more difficult to treat.

More people today suffer from chronic diseases than ever before in the history of man. Some of the reasons for this are:
- longevity
- better treatment or arresting methods
- better diagnosis and record keeping which more accurately reflect the true numbers.

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

Refer to: Readers Digest, August 1970, "How to Kill Your Husband (Legally)"

Develop a table that shows the number of people in each of the major age groups. How does this compare with pre-World War I? Why? What kinds of new health problems has this grouping caused?

Show the film, Who will keep them, available through Ithaca College, Audiovisual Department, Ithaca, New York 14850.

Identify and discuss the factors related to the increase in the number of people who have chronic diseases.

Discuss the significance of these increases to public health practice.

- What kinds of program changes must be planned for the future?

SUPPLEMENTARY INFORMATION FOR TEACHERS

encompasses both senescence and senility, their clinical problems and their solutions.

Senescence is defined as the process of aging while senility is old age, or the health problems resulting from old age.

There are several factors responsible for the accumulation of people in the older age groups. Two of these factors are (1) increase in life expectancy, and (2) decrease in the birth rate. With the accumulation of larger numbers of people in this age bracket, their health problems have become more noticeable and concentrated. The incidence of diseases associated with old age has increased considerably and the death rate for these has risen significantly. According to the National Health Survey, about 41 percent of the American people have one or more diagnosed chronic diseases. About 10 percent of the people who are not in institutions are limited in

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS
	The leading causes of death in the United States are heart and circulatory diseases, and cancer, which are both chronic or degenerative diseases.
B. Kinds of health problems related to senescence	The following health conditions are most important to the aged: • housing • recreation • emotional problems related to getting old • chronic and degenerative diseases

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
	their activities because of some kind of chronic condition.
Are chronic diseases an inevitable part of the aging process? Explain.	According to J.J. Hanlon, the population is not aging now as rapidly as before World War II, and the increase in chronic diseases cannot be as closely linked to increased age of the population as previously assumed.
Suggested films: Day after tomorrow, The critical decades, Proud years, Where life still means living Note: Although the above films are somewhat dated and specifically intended for the aged, if properly used they may help students gain insight into the problems of geriatrics. Compare the leading causes of death and disability of 1900 with today. How have these health conditions changed? Why?	The average life expectancy at birth in the United States has passed the 70-year mark. The kinds and extent of the health problems related to these people can be expected to include those conditions which result from degeneration of tissues. Nearly all heart and circulatory diseases, which are the leading causes of death, have some kind of degeneration associated with the condition. Improvement of the environment and living conditions can delay the time when these diseases may become disabling or fatal.
Invite members of the county health commission	The three leading causes of death in 1900

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS
C. Public health practices leading to solutions	Solutions to the chronic and degenerative diseases lie in attention being given by the individual, the health sciences, and social action.
	Insurance programs, both governmental and private, provide some financial support for treatment

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

to discuss specific programs they have available for the problems which are peculiar to the aged.

Invite to class representatives of the "Golden Age Club" to discuss their activities. How can high school students become more directly involved with the problems of the aged?

Have a committee of students identify the key problems regarding chronic diseases.

Have a second committee formulate possible solutions to these problems.

Have a third committee draw all ideas together and develop an ideal public health program to deal with diagnosis, prevention, and treatment of degenerative disease and other problems of aging.

Have a debate on compulsory versus voluntary health protection.

SUPPLEMENTARY INFORMATION FOR TEACHERS

were (1) influenza and pneumonia, (2) tuberculosis, and (3) diarrhea and enteritis. The chronic diseases do not appear on the list until the fourth leading cause of death. Today, the three leading causes of death are (1) diseases of the heart, (2) malignant neoplasms, and (3) cerebral hemorrhage.

Since most chronic diseases do not lend themselves readily to cure, approaches rest with prevention and control. Programs of prevention are of (1) a social nature through government and private programs and agencies, (2) an individual nature wherein the person consults and is treated by his personal physician, and (3) a combination of these two wherein the family physician may work with or use the public health facilities while treating his patient.

The Medicare program was passed by Congress in 1965. Previously, "medical aid to the aged" programs had been

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and other care.

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITES	SUPPLEMENTARY INFORMATION FOR TEACHERS
What does the future hold for health protection for the aged? What kinds of protection are presently lacking that should be included in your prediction?	in effect. However, this was directed primarily at people over 65 years of age who were considered indigent. Medicare broadened both the base for those who shall be covered as well as the extent of coverage. There follows a brief summary of the major benefits from this program: • hospital coverage. Includes general hospital, outpatient care, nursing homes, and psychiatric hospitalization. • medical expenses. These include physician's and surgeon's fees and diagnostic tests, ambulance service, and rental of medical equipment.
Distinguish between the various kinds of health protection plans. Invite to class a health insurance agency representative to outline the various forms of health coverage and their limitations. (A Blue Cross/Blue Shield representative, for example.)	There are several different kinds of voluntary health insurance plans available. In many instances, adequate coverage has prohibitive costs. The types of health insurance protection include: • loss of income • hospital expense • surgical expense • regular medical expense • major medical expense

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGE AND L
VII. Societal Health Problems		
A. Recent progress in medicine and public health	Many advances have been made in public health.	Find in pu being pract publi commu
	Although we can point with pride too many advances made in public health, new emphasis on coping with increasingly varied and complex problems still exists.	For r icine read week, and W
	That health progress has lacked uniformity is evidenced by the presence of malnutrition, poverty, disease, illiteracy, and other disabling conditions.	Make depi lems publi
		Ident

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

Find out if new advances in public health are being applied to the practice of medicine and public health in your community.

For new advances in medicine and public health, read Today's Health, Newsweek, Time, and U.S. News and World Report.

Make a bulletin board depicting various problems and advances in public health.

Identify the voluntary

SUPPLEMENTARY INFORMATION FOR TEACHERS

In summary, geriatric programs need to consider means of (1) maintaining the health status of the individual, (2) providing programs for the prevention, detection, and treatment of disease and injury, (3) limiting the condition's progress, and (4) providing rehabilitation programs and facilities. The basis for all of these lies in research and application.

New advances in medicine and public health include:
- medical engineering
- heart-lung machine
- hyperbaric oxygen therapy
- laser beam
- cryosurgery
- X rays
- nuclear machine
- electronic diagnosis
- surgery
- thermography
- emergency life saving equipment
- new parts for human body
- transplants
- space medicine
- increase in life span
- reduction in communicable disease
- advances in surgery
- uses of anesthetics

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED AND LEARN
		agencies • public • health aged • public • researc
B. Unsolved problems in medicine and public health	A variety of complex unsolved health problems still exist in medicine and public health.	What steps taken to lem of: • old age - psych - socio - econo - occup • addictio - drugs - tobac - alcoh • accident • genetic • viral in • cancer What are s why the Un does not l

SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

agencies which deal with:
- public health problems
- health problems of the aged
- public health education
- research

What steps are being taken to solve the problem of:
- old age
  - psychological
  - sociological
  - economical
  - occupational
- addiction
  - drugs
  - tobacco
  - alcohol
- accidents
- genetic defects
- viral infection
- cancer

What are some reasons why the United States does not lead in life

SUPPLEMENTARY INFORMATION FOR TEACHERS

- development of new drugs and chemicals (insulin, cortisone, ACTH)
- FDA improved standards

Attempts to detect through screening potential public health problems include the following:
- Rh incompatibilities
- syphilis
- PKU (phenylketonuria)
- genetic counseling
- routine urinalysis
- hemoglobin determinations in prekindergarteners

Some unsolved public health problems include:
- viral infections
- prevention of genetic defects
- drug abuse and addiction
- diseases of heart and arteries
- cancer
- respiratory diseases
  - emphysema
  - bronchitis
- accidents
- problems of aged
- alcoholism
- dental cavities (most widespread disease in the world)
- suicide
- mental illness

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SU AN
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		Ha sc in pu
		Di th go th
	The poor often pay more for food and receive inferior products.	Do fo po la of ho ho ma

UGGESTED TEACHING AIDS ND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
xpectancy and in the owest rate of infant ortality?	• poverty • pollution • nutritional • educating people on how to live healthfully
ave students identify ome of the barriers mpairing progress in ublic health.	Life expectancy in about 20 other countries is greater than in the United States. A black American's life expectancy is a little over 63 years. A white American's life expectancy is 70 years. Black infants die at twice the rate of whites. Black mothers die at four times the rate of whites.
iscuss: What should be he role of the Federal overnment in protecting he consumer's health?	
o the poor pay more for ood because they are oor or because they are acking in the knowledge f what food to buy and ow to buy? Do they know ow to prepare food for aximum nutritional value?	Thirty-three percent of the poor's income goes for food as compared to 23 percent for the population as a whole. A test in St. Louis showed that hamburger in stores

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS
	Residues of pesticides, drugs, and chemicals in foods can cause many illnesses.
C. Geographic factors	In certain areas of the country, poverty and poor health are more serious than in the country as a whole.

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SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

Debate: The Pure Food and Drug Administration is adequately protecting the consumer.

Have students research the health problems and related social problems of:
- Appalachia
- Indian reservations
- Rural South

Discuss the findings.

Discuss: How does urban poverty have roots in rural poverty?

Do research on:
- Caesar Chavez and the grape pickers strike
- Indians at Alcatraz
- Migrant workers
- Poor people's March on Washington, 1968
- VISTA

SUPPLEMENTARY INFORMATION FOR TEACHERS

in poor areas had 26.5 percent fat as compared to 18.5 percent fat in affluent neighborhoods.

Rural poor and health:
- facilities inadequate, e.g., sewage, water, health care
- their way of life is accepted
- transportation to health facilities often non-existent
- health education is generally inadequate or inappropriate

Read:
- Down these mean streets, by Piri Thomas
- Custer died for your sins, by Vine Deloria Jr.
- See the film narrated by Ed Murrow: Harvest of shame
- Agenda Magazine

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS
	Lack of sufficient housing for low-middle class and low-income families increases the geographic separation into sections of rural and urban decay and sections of middle and higher income areas. The sociological health problems of both groups are increased.
D. Solving community health problems	With the development of large megalopolises, health problems overlap political and geographic boundaries and, therefore, require cooperative planning for developing solutions.
	Community health is a specific reflection of

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	January 1967, February 1967, March 1968, September 1966. - *Humanizing the city*, Marion O. Robinson Public Affairs Pamphlets number 417.
Discuss: Even with Open Housing legislation why are there few people from minority groups in the suburbs?	Read: New York Times, "Housing: the American myth," Educational Supplement, page 11.
It is estimated that 26 million new and rehabilitated housing units are needed in the next 10 years. Why are so few being built?	Some barriers to improvement are: • opposition of real estate industry • weak enforcement procedure in law • attitudes of minority groups • economic restrictions overt and covert discrimination
What are the sociological health problems that arise because of these geographic developments?	
Select any timely and pertinent regional health problem such as: • need for hospital or mental health facilities • air or water pollution case • rehabilitation centers for alcoholics • food sanitation • noise abatement	A community is defined in Webster's dictionary as "the people who reside in one locality and are subject to the same laws, have the same interest----a body politic, whether village, town, city or state, hence the public society at large."

REFERENCE

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the efforts of many persons; professionals, groups, and agencies (official and voluntary).

The goal of optimal community health transcends local, State, National, and international boundaries.

Selected health concerns that transcend local and State boundaries include:
- air pollution
- water pollution
- vector control
- radioactive contamination
- foods and food control
- communicable disease
- solid waste disposal
- pesticides

SUGGESTED TEA
AND LEARNING

- solid waste
- radiation
- pesticides

Organize the
investigate t
health proble
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  county plan
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  health) to
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can have a vo
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county health
(If no commis
determine if t
need for one,
would organize
tion, and what
it could consi
- reviewing St
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  laws pertain
  problem (e.g
  tions pertai
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SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

- solid waste disposal
- radiation
- pesticides

Organize the class to investigate the selected health problem by:

- interviewing city or county planning commissions (or boards of health) to determine how the individual citizen can have a voice in remedying community or county health problems. (If no commission exists, determine if there is a need for one, how it would organize and function, and what problems it could consider.)
- reviewing State and local regulations and laws pertaining to the problem (e.g., regulations pertaining to permanent and mobile homes)
- determining current trends and research on the selected regional problem (e.g., new trends in facilities for treatment of emotional problems)
- establishing needs in this area (e.g., survey

SUPPLEMENTARY INFORMATION FOR TEACHERS

Refer to Johns, Sutton and Webster, *Health for effective living*, McGraw-Hill, chapter 15.

Communities generally provide the following services:

- Education
  - schools
  - religious agencies
  - libraries
  - clubs
- Protection
  - fire
  - police
  - civil defense
  - National Guard
- Service utilities
  - gas
  - electric
  - oil
  - mail
  - transportation
- Recreation
  - parks
  - playgrounds
  - civic centers
- Health
  - public agencies
    - department of health
    - department of sanitation
    - department of water
    - department of food
    - sewage treatment
    - narcotics bureau
    - hospitals

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SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES

needs of emotional problems, suicide rates, national statistics; discuss with mental health committees local problems and existing facilities)

- interviewing men in industry to determine current efforts being made to alleviate the selected problem (alcohol rehabilitation, air or water pollution).
- interview city government people on what local, State, or National governmental agencies are doing.
- What are the financial ramifications?

Organize a student city planning meeting to solve regional health problems. Through discussion, bring out the information gathered from the above investigations. Culmination projects may be in the form of:

- recommendations of regulations or laws which should be passed or changed
- newspaper articles on the responsibility of

SUPPLEMENTARY INFORMATION FOR TEACHERS

clinics
  (mental health, maternal and child care, prenatal, immunization, venereal disease)

- private agencies (semiprivate)
  - Voluntary Nurse Association,
  - Community Chest,
  - TB and Respiratory Disease Association,
  - Health Association,
  - Cancer Society,
  - Alcoholics Anonymous,
  - Topic House (drug rehabilitation center)

- Welfare
  - children
    - adopted children
    - dependent children
    - handicapped children
    - neglected children
  - youth
  - families

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	S A

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SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
individuals, industry, local government, National government, or regional groups in solving this problem • school display of the problem and possible solutions	
Community Health Project Choose a community's current health problem, and, using the following outline, prepare either a written report, slide tape presentation, photographic or pictoral essay, or other applicable presentation technique. •The problem - definition of problem - historical aspects of problem - compare problem local State Nation world - where the problem is most acute - causes of problem - obstacle to solutions - effects upon various age groups in our society •Statistical aspects of the problem	The factors involved in dealing with a community health problem must include the sociological, psychological, physiological, economical, and geographical. In addition, consideration should be given to the methods available for prevention and control, the various agencies involved in the services, the personnel needed, the kinds of service being rendered, and how they are to be financed.

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ND LEARNING ACTIVITIES

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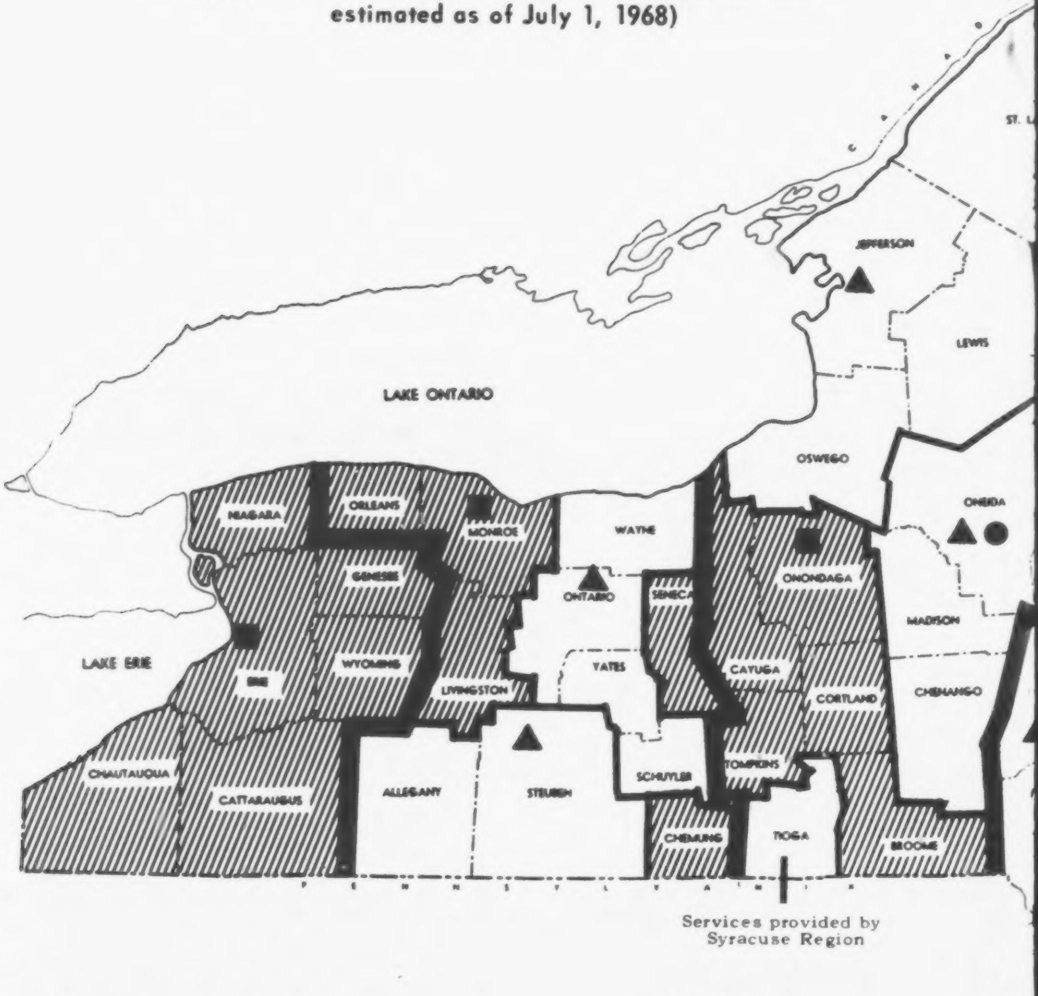
- List the various agencies involved in prevention services.
- How are programs organized? Coordinated?
- How is support of public gained?
- What is the role of the individual health department, voluntary agencies, PTA groups, in finding solutions to the problem?
- What laws or bills are there governing or dealing with the problem?
- What health education methods are being employed to deal with the problem by the school and by community health agencies?
- What research is being conducted and by whom?
- What agencies are encouraging research through grants?

nvestigate health regu-
ations of foreign visi-
ors and reentry of citi-
ens to the United States.
iscuss the problems of
dministering these regu-
ations. Is there reason
or keeping up immuniza-
ions as an adult even
hough one does not travel?
xplain.

NEW YORK STATE HEALTH REGIONS AND DISTRICTS AND LOCAL FULL-TIME HEALTH DEPARTMENTS, APRIL 1, 1969

(Populations exclude Institutional Districts and are estimated as of July 1, 1968)


LAKE ONTARIO
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LIVINGSTON
YATES
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CORTLAND
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CHAUTAUQUA
CATTARAUGUS
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Services provided by Syracuse Region

▬ State Health Region Boundary

— State Health District Boundary (Full-time City Health Units excluded)

■ Regional Office - 5

▲ District Office - 8

● Full-time City Health Unit - 6

▨ County Health Department - 29

REGIONS	POP
ALBANY	1,295,19
BUFFALO	1,636,09
ROCHESTER	1,202,85
SYRACUSE	1,706,03
WHITE PLAINS	4,116,33
TOTAL	9,956,51
NEW YORK CITY	8,125,00
NEW YORK STATE	18,190,28

*Includes institutional district population of 108,770

APPENDIX A

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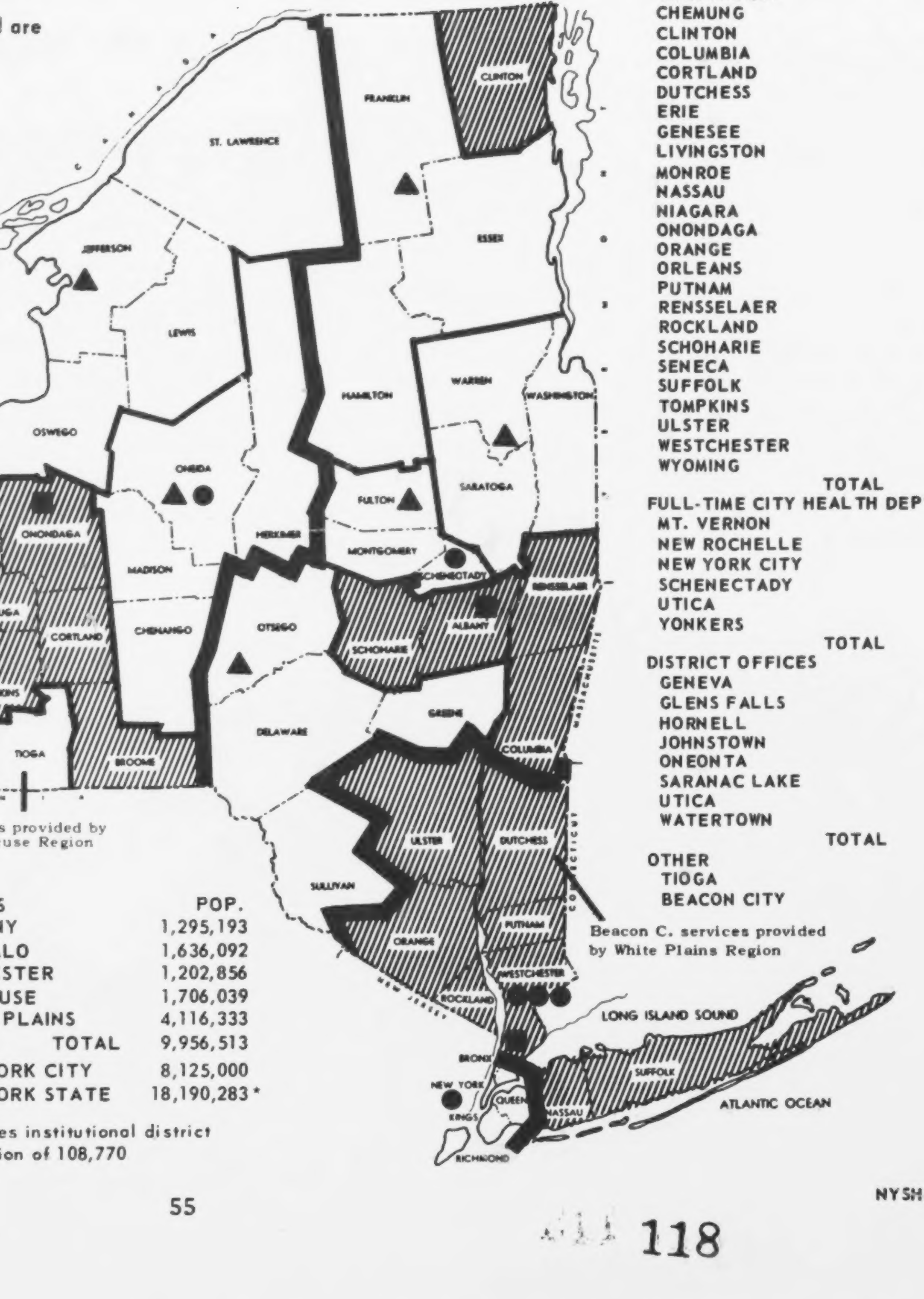
CLINTON
FRANKLIN
ST. LAWRENCE
ESSEX
JEFFERSON
LEWIS
HAMILTON
WARREN
WASHINGTON
OSWEGO
ONEIDA
SARATOGA
FULTON
ONONDAGA
HERKIMER
MONTGOMERY
MADISON
SCHENECTADY
RENSSELAER
CORTLAND
CHENANGO
OTSEGO
SCHOHARIE
ALBANY
TIOGA
BROOME
DELAWARE
GREENE
COLUMBIA
MASSACHUSETTS
ULSTER
DUTCHESS
SULLIVAN
CONNECTICUT
PUTNAM
ORANGE
WESTCHESTER
NEW JERSEY
ROCKLAND
LONG ISLAND SOUND
BRONX
SUFFOLK
NEW YORK
QUEENS
KINGS
NASSAU
ATLANTIC OCEAN
RICHMOND

s provided by
use Region

Beacon C. services provided
by White Plains Region

S	POP.
NY	1,295,193
LO	1,636,092
STER	1,202,856
USE	1,706,039
PLAINS	4,116,333
TOTAL	9,956,513
ORK CITY	8,125,000
ORK STATE	18,190,283 *

es institutional district
ion of 108,770

COUNTY HEALTH DEPTS.	POP.
ALBANY	286,764
BROOME	221,864
CATTARAUGUS	79,752
CAYUGA	74,252
CHAUTAUQUA	150,280
CHEMUNG	100,434
CLINTON	76,047
COLUMBIA	49,920
CORTLAND	44,049
DUTCHESS	193,588
ERIE	1,081,197
GENESEE	58,764
LIVINGSTON	46,952
MONROE	661,537
NASSAU	1,437,963
NIAGARA	231,891
ONONDAGA	474,834
ORANGE	209,228
ORLEANS	38,033
PUTNAM	48,265
RENSSELAER	148,685
ROCKLAND	204,080
SCHOHARIE	22,006
SENECA	31,581
SUFFOLK	999,833
TOMPKINS	74,731
ULSTER	140,682
WESTCHESTER	520,092
WYOMING	34,208
TOTAL	7,741,512
FULL-TIME CITY HEALTH DEPTS.	
MT. VERNON	70,150
NEW ROCHELLE	73,504
NEW YORK CITY	8,125,000
SCHENECTADY	69,584
UTICA	94,633
YONKERS	207,247
TOTAL	8,640,118
DISTRICT OFFICES	
GENEVA	182,176
GLENS FALLS	202,020
HORNELL	142,143
JOHNSTOWN	181,690
ONEONTA	176,168
SARANAC LAKE	82,309
UTICA	353,565
WATERTOWN	322,702
TOTAL	1,642,773
OTHER	
TIOGA	45,409
BEACON CITY	11,701

NYSHD - CHS - 4-21-69

APPENDI

TABLE OF OCCUPATIONA

Parasites and Microbes

Parasites:
  Hookworm

Microbes
  Tetanus
  Ictero-haemorrhagic spirochaetosis
  Leptospirosis
  Brucellosis
  Anthrax
  Bovine tuberculosis
  Tularemia

Mineral Agents

Chemicals
  Arsenic
  Beryllium
  Chromium
  Mercury
  Manganese
  Nickel
  Phosphorus
  Lead
  Sulfur

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PPENDIX B

ATIONAL DISEASE AGENTS

Organic Agents

Methyl bromide
Methyl chloride
Carbon tetrachloride
Benzene
Benzol
Dinitrophenol
Hydrazines
Lubricants
Tars
Methyl mercury
Organic phosphates

Physical Agents

X rays
Radioactive substances
Sources of particulate emissions

Pressure:
  Pneumatic hammers
  Atmospheric pressure

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____ "The historical roots of our ecologic crisis." by

____ "The tragedy of the commons." by Garett Hardin.

Scientific American. "The black death." by W. L. Lauge

Social Action. "Air pollution and the death of our citi

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Today's Health. "From dump to glaring dump." by Ron Ne

____ "Healing our sick environment." by Mike Michaelso

____ "Pollution: everybody's adversary." (This issue
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____ "The secret weapon." by Dee Belveal & Don Phillip

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Ben H. Bagdikian. October 8, 1966.

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A.; in the world." by N. Cousins. 50:28-9. January 28, 1967.

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is." by Lynn White, Jr. 155:1203-1207. March 10, 1967.

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6.

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ADDITIONAL CURRICULUM MATE

Air pollution experiments for junior and senior high school scien Henry C. Wohlers, Chairman. Education Committee, Mid-Atlantic Association. 1968.

Land for learning. Informational material. A Supplementary Educ Tivoli Lakes Nature Study Sanctuary, Philip Livingston Junior H

People and their environment. Teacher's Guide to Conservation Ed Publishing Company, 227 Park Avenue, New York 10017. January

Sailing down my dirty river. A song by Pete Seeger. Recorded by

Well of the world. A one-act play by Joan Vail Thorne. Written of Health. (Dramatizes the importance of pure water.)

SOURCES OF ADDITIONAL MATERIALS A

ABATES -- Ambassadors to Bring Action Through Environmental Study the New York State Health Department sponsor operation ABATES. information.

American Medical Association. 535 North Dearborn Street, Chicago

American Public Health Association: *Suggested ordinances and reg* The Association. New York. 1964.

American Red Cross Publications: *High school red cross plan of a*

Channing L. Bete Co. *Needed: clean air.* Box 112, Greenfield, M

Conservation Foundation. A Bulletin on Conservation Education. D.C. 20036.

Dunbar Educational Research Services, Inc. *Environmental educati*

ITIONAL CURRICULUM MATERIALS

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ommittee, Mid-Atlantic States Section, Air Pollution Control

1. A Supplementary Educational Center for Environmental Education.
ilip Livingston Junior High School, Albany, New York.

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York 10017. January 1969. (A series of guidebooks.)

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n Vail Thorne. Written and produced for the New York State Department
of pure water.)

F ADDITIONAL MATERIALS AND PAMPHLETS

ough Environmental Study. Statewide organizations in cooperation with
onsor operation ABATES. Contact your local health department for

Dearborn Street, Chicago, Illinois 60610.

ested ordinances and regulations covering public swimming pools.

hool red cross plan of action. Programs for secondary schools.

Box 112, Greenfield, Massachusetts 01301.

onservation Education. 1250 Connecticut Avenue, N.W., Washington

. *Environmental education.* Madison, Wisconsin.

Humble Oil and Refining Co. Public Relations Department.
You can help keep air and water clean.

Kaiser Aluminum and Chemical Corp. 300 Lakeside Drive, Oa
the man-made planet. 1970.

League of Women Voters of the United States. *The big wate*
problems of supply, pollution, floods, and planning acros
1966.

The Massachusetts Audubon Society. *The curious naturalist.*

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National Aeronautics and Space Administration. *NASA facts.*

National Agency for International Publications. *Basic saf*
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environmental hazards. Health is a community affair. He

New York State Action for Clean Air Committee, 105 East 22
solved. (Pollution from 6 million motor vehicles in New

New York State Conservation Department. Albany, New York.

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Do your share for clean air.
Information kit: pure waters program.
Official directory of health and welfare services in New
Preserving our air resources. 1968.
Toward pure waters.
The story of water supply.
Water resources planning.
The wealth of water.

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rive, Oakland, California 94604. Kaiser News. *Ecology:*

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ing across the U. S. A. Brattleboro, Vermont: S. Greene Press.

turalist. Lincoln, Massachusetts 01773.

ision, 1 Madison Avenue, New York. *Modern miasmas. Troubled*

d control. Washington, D. C.: National Academy of Sciences.

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#1.

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fair. Health manpower: action to meet community needs.

East 22nd Street, New York, New York 10010. *Another problem*
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ew York. *Conservation highlights. The conservationist.*

:

s in New York State.

Divisions: New York State Department of Health:
  Air Pollution Control Board
  Division of Air Resources, 84 Holland Avenue, Albany, New
  Division of Pure Waters, 84 Holland Avenue, Albany, New Yo
    Bibliography - September 1969.
    Glossary of most frequently used terms in water pollutio
    New York's pure waters progress '69.
    The pure waters program and you: prepared for project A
    Solid wastes: the effluence of an affluent society. Ad
  Division of General Engineering and Radiological Health -
    of which is located at 845 Central Avenue, Albany, New Y
    operation, maintenance. 1969.
      Bureau of Food and Recreation Sanitation
      Bureau of Hospital and Institutional Engineering
      Bureau of Radiological Health
      Bureau of Solid Wastes, Engineering and Community Envi
      Bureau of Rodent, Insect and Weed Control
      Bureau of Water Resources. *Directory of local public*
        engineers.

New York State. Office of Local Government. *Constructing e*
  works. Report #3. October 1962.

Parke Davis & Co. *Patterns of disease.* January 1960.

Philadelphia Gas Works. *Let's clear the air.*

Power, Reader Service Department. 330 West 42nd Street, New
  report. Water - a special report. June 1966.

Public Affairs Pamphlets, 381 Park Avenue South, New York, N
  The health of the poor. by Irvin Blocke. No. 435.
  Humanizing the city. by Marian O. Robinson. No. 417.
  Natural resources: their protection and development.
  Poverty in the U. S. A. by Strouder Sweet. No. 398.
  Private nursing homes.
  Quiet guardians of the people's health.
  Why the ghetto must go. No. 423.
  W.H.O. its global battle against disease.
  Your community and mental health.
  Your nursing services: today and tomorrow.

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water pollution control.

ed for project ABATES. September 1969.
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ogical Health - This division is divided into six bureaus, each
e, Albany, New York 12206. *Sanitary landfill: planning, design,*

on
ngineering

d Community Environmental Health
rol
of local public health engineers and State regional sanitary

Constructing economical sewage work: from study of needs for sewage

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966.

uth, New York, New York 10016.
No. 435.
n. No. 417.
evelopment.
. No. 398.

.

Soil Conservation Society of America, 7515 N. E. Ankeny Road,

Tuberculosis and Respiratory Disease Association. *Air polluti*

University of the State of New York. The State Education Depa
  Arbor and wildlife day.
  Air pollution. The Curriculum Development Center. 1966.
  Water pollution. The Curriculum Development Center. 1967.

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  About the poor - some facts. by Elizabeth Herzog. 1967.
  Growing up poor.
  Low income life styles. by Lola Irelan.
  A strategy for a livable environment: Report of Task Force
    June 1967.

U. S. Department of Interior. Federal Water Pollution Control
  October 1969. *Showdown.* October 1968.

U. S. Food and Drug Administration Publications:
  Leaflet #20. August 1963.
  Facts for consumers - pesticide residues.

U. S. Public Health Service Publications (may be obtained from
  Public Inquiries Branch and other sections):
    Air around us.
    Air pollution and respiratory disease.
    Clean air act, 1967.
    Clean air act amendments and solid waste disposal act of
    Clean air for your community. Pub. No. 1544.
    Clean water - a chart book of America's water needs, 1900-
    The effects of air pollution. Pub. No. 1556. 1967.
    Home sanitation.
    How polluted is the air around us.
    Let's clear the air
    Motor vehicles: air pollution and health. A Report of th
    Pesticides.
    Pollution and life in water.

eny Road, Ankeny, Iowa 50021. *The wonder of water.*

ir pollution, the facts.

ation Department. Publications:

1966.
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Technical Information. Washington, D. C. *Understanding the*

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Task Force in Environmental and Health Related Problems.

on Control Administration. *A primer on waste water treatment.*

ained from Federal Water Pollution Control Administration,

l act of 1965.

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Public enemy no. 1: air pollution.
The public health service today.
Safe drinking water in emergencies.
The sources of air pollution and their control. Pub. No
Take three giant steps. Pub. No. 1551. 1969.
Washing our waters: your job and mine. Pub. No. 193.
What about radiation.
With every breath you take.
You can prevent food-borne illness.

U. S. Select Committee on Astronautics and Space Exploration.

World Health Organization. Columbia University Press. Inter
New York 10027. Publications:
1947-1964 catalogue of W.H.O. publications.
Fact sheet.
Its global battle against disease.

MULTIMEDIA MATE

FILMS

All requests for the following films should be addressed to:

Film Library Supervisor
Office of Public Health Education
New York State Department of Health
84 Holland Avenue
Albany, New York 12208

Air pollution, everyone's problem. KSC. 20 minutes. Color.
The story of air pollution, its causes and effects.

Better water for Americans. AWWA. 14 minutes. b&w.
Describes the fundamentals of the water supply industry.

Crisis on our rivers. NYH. 13½ minutes. Color.
It emphasizes that water pollution is the responsibility
that ruin the use of our streams.

trol. Pub. No. 1548. 1966.
1969.
Pub. No. 193.

e Exploration. Staff Report: *The next ten years in space.* 1959.

Press. International Documents Service, 2960 Broadway, New York,

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ULTIMEDIA MATERIALS

Note: The films listed in this first section are available from the New York State Department of Health. They may also be secured from other sources listed on pages 70-72.

dressed to:

tion
Health

nutes. Color.
effects.

b&w.
pply industry.

r.
responsibility of every citizen. Shows various types of pollution

Crisis on the Kanawha. ORS. 22 minutes. Color.
Causes of pollution are discussed and methods of preven

A decent burial. 12½ minutes. Color.
The film explains the effectiveness and economy of the

Every drop a safe one. NMPC. 10 minutes. b&w.
Illustrates the danger of drinking water from streams e
steps taken to control the quality of water delivered to t

Finding out about the water cycles. UWF. 13½ minutes. Col
Good explanation of evaporation, transpiration, condens
explains how water constantly moves and changes from one s

The first mile up. CMGHF. 28 minutes. b&w.
A study of the current air pollution problem. Factors

Health and the cycle of water. CIPR. 20 minutes. b&w.
Water in its cycle is shown at the source, is purified,
and thence, through sewage treatment plant, to the sea whe

A healthier place to live. CDC. 12 minutes. b&w.
Stressing basic principles of environmental sanitation
labor camp. The responsibilities of workers, growers, lea
healthful surroundings in camps are clearly indicated.

Ill winds on a sunny day. CDC. 29 minutes. Color.
The film points out how air pollution has involved from
dangerous problem affecting the entire nation.

It's your decision: clean water. SDA. 14½ minutes. Colo
The film stresses the need for immediate community acti
the future. The decision to have good sewage treatment de

Keep 'em out. USPHS. 10 minutes. b&w.
Rats spoil food, destroy buildings, and spread disease.
trapping, and ratproof construction of buildings.

Key to progress. CSPS. 20 minutes. Color.
This film is an excellent presentation of community eff

revention and treatment shown.

the sanitary-landfill method of refuse disposal.

ams exposed to pollution and reveals the various
to the public.

Color.
ndensation, and precipitation given while the film
one state to another.

tors involved in air pollution are discussed.

.
fied, enters the home, leaves the home to sewer mains
a where it is again evaporated and condensed.

tion and taken in a typical domestic seasonal farm
, leaders and others for providing and maintaining
.

from a relatively simple problem to a complex and

Color.
action to ensure abundant supplies of clean water for
nt depends on the will of the community.

ase. Demonstrates control measures by poison,

y efforts to obtain a sewage treatment facility.

Municipal sewage treatment processes. UWF. 13 minutes. b&w.
Shows in detail the equipment and processes which reduce
protecting health and conserving water resources.

Oops! STF. 20 minutes. Color.
Shows how careless actions within a plant can result in s
situations.

The river must live. SHELL. 21 minutes. Color.
The film shows how a river cleanses itself, what happens w
saved if only man would ease the burden so nature can do its

Take a deep breath. CDC. 25 minutes. b&w.
A documentary treatment of the air pollution problem with
It discusses the need for voluntary action by industry and th
pollution.

The third pollution. STF. 23 minutes. Color.
The film demonstrates and explains how burning refuse cont
refuse contaminates water. It emphasizes that collection and
and technically challenging.

Troubled waters. USSC. 26 minutes. Color.
Describes the extent of water pollution in many of the maj
State, and local authorities to fulfill the need for pollution
control legislation.

Water. CMC. 14½ minutes. Color.
The general problems related to worldwide water needs and
for cooperation among countries for a common goal.

The waters around us. WNYC. 25 minutes. b&w.
A documentary film dealing with the problem of water pollut
Features the story of Owls Head sewage treatment plant, which
sewage from the waters that surround the city.

Wise use of water resources. UWF. 13½ minutes. Color.
Illustrates concepts relating to the properties of water; i
and its use for consumer supply. Conservation methods are emp

minutes. b&w.
s which reduce sewage to harmless effluent and solids, thus
ces.

can result in stream pollution and how to guard against such

r.
, what happens when it is overloaded with waste,and how it can be
ture can do its job.

on problem with emphasis on the health effects to the people.
industry and the public in order to achieve control of air

ning refuse contributes to air pollution, and how dumping
t collection and disposal of solid wastes are expensive

many of the major watercourses and the action taken by Federal,
ed for pollution research, treatment, plant construction,and

water needs and availability are presented. It shows the need
goal.

n of water pollution as it affects the City of New York.
ent plant, which is a part of the plan to eliminate all

Color.
ties of water; its abundance; its value as a natural resource;
n methods are emphasized.

With each breath. NYH. 28½ minutes. Color.
This film is presented by the New York State Department of Heal
issues involved in the fight for clean air.

The Department of Health maintains a film library, containing up-to-
Additional films are listed in the *Health Film Catalogue* and *Supp*

ADDITIONAL FILMS

Air pollution. JOU. 10 minutes. Color.
Discusses air pollution - its origins, perils,and possible reme

Another light. IFB. 25 minutes. b&w.
Shows how the people of a small town helped raise funds for a

Arteries of life. EBEC. 10 minutes. Color.
Shows the functions of plant life in catching and storing water
cycle, and the water table.

Auto, U.S.A. DYN. 27 minutes. Color and b&w.
Explains that the great rise in the number of motor vehicles is
health of our communities.

Beautiful river. NBCEE. 26 minutes. Color.
This is the story of the Connecticut River, once renowned for
by many standards.

Breath of life. PFP. 16 minutes. Color.
Explains where and when to use mouth-to-mouth breathing and te

Breathe at your own risk. CDC. 58 minutes. b&w.
Shows scenes of air pollution at its worst from Los Angeles to

Challenge to mankind. CMGHF. 28 minutes. b&w.
Five well known authorities express their views on the threat
some possible solutions.

Conserving our water resources today. CORF. 11 minutes. Color and
A survey of the domestic agricultural and industrial uses of wa

r.
State Department of Health to advance public understanding of
r.

ibrary, containing up-to-date accurate films on health subjects.
Film Catalogue and *Supplement*.

ADDITIONAL FILMS

Note: the films in this list are not available from the New York State Department of Health. They must be ordered from other sources.

perils,and possible remedies.

elped raise funds for a new hospital.

or.
atching and storing water, in maintaining top soil, the water

b&w.
mber of motor vehicles is threatening the economic and social

or.
River, once renowned for its great beauty, now a raw sewage ditch

to-mouth breathing and tells why it is the best method of resuscitation.

s. b&w.
worst from Los Angeles to New York.

b&w.
heir views on the threat to mankind of overpopulation and offer

F. 11 minutes. Color and b&w.
and industrial uses of water in the U.S.

Control or destroy. NBCEE. 12 minutes. b&w.
The overpopulation warnings are a grave concern, but a crisi
throughout the world improve and more people are instructed in

Cry of the marsh. NYSCD. 12 minutes. Color.
A powerful and emotional film that captures the poetic beaut
which results when man reclaims a marsh for other purposes.

Defending the cities health. EBEC. 11 minutes. b&w.
Describes factors which affect the health of cities.

Garbage explosion. EBEC. 16 minutes. Color and b&w.
This film investigates the nature, volume, and composition of
and disadvantages of current disposal methods and shows possible

Good riddance. ORS. 29 minutes. Color.
The dangers of pollution to city water supply systems, recrea
dramatically illustrated.

Harvest of shame. CMGHF. Narrated by Edward Murrow. 54 minutes.
The degradation and exploration of millions of migrant worker

Heritage of splendor. NYSCD. 18 minutes. Color. Narrated by Ro
Emphasizes the importance of preserving America's great natur

House of man: our crowded environment. EBEC. 11 minutes. Color
Shows the problems that have resulted from the population exp
challenge: to apply our increased technological understanding t

Hunger in America. CBSTV. 60 minutes. b&w.
Presents a study of areas in the U.S. dealing with poverty am
remedies and a study of the current food programs.

A land betrayed. NEW. 10 minutes. Color.
Shows that people are the only ones who can make America ugly
restore and protect her beauty.

Lassie's litter. NYSCD. 28 minutes. Color.
Lassie dramatizes the serious consequences of dropping litter.
protect wildlife from annihilation.

b&w.
ve concern, but a crisis is less likely as farming methods
ople are instructed in methods of birth control.

lor.
ptures the poetic beauty of marsh life, then the awesome finality
for other purposes.

nutes. b&w.
alth of cities.

lor and b&w.
lume, and composition of solid wastes. It presents advantages
thods and shows possible long range solutions.

r supply systems, recreational areas, to fish and wildlife are

ard Murrow. 54 minutes. b&w.
llions of migrant workers in the U.S. are shown.

Color. Narrated by Ronald Regan.
ng America's great natural resources.

BEC. 11 minutes. Color and b&w.
from the population explosion of the 20th century. The
ological understanding to safeguarding a quality future.

&w.
dealing with poverty among minority groups. Includes suggested
programs.

.
o can make America ugly and people are the only ones who can

r.
nces of dropping litter. Her heroism and a man's courage

Let's keep America beautiful. NYSCD. 20 minutes. Color.
Deals with litterbugs and how to keep our countryside clean.

Life in the balance. SCF. 30 minutes. Color.
Photography from seven countries traces patterns of world food sh

Litter-ly speaking. NYSCD. 14 minutes. Color.
An antilitter campaign aimed at teen-age level.

Man's problem. EBEC. 20 minutes. Color.
Demonstrates our absolute dependence on an adequate supply of wat
in making water available for our increasing population.

Nation of spoilers. NYSCD. 11 minutes. Color.
Shows the most common kinds of vandalism. Discusses the reasons
and litter the countryside.

Nature's plan. EBEC. 15 minutes. Color.
Describes the water cycle as nature's plan for providing all livi

A nice place to visit, but. NYSCD. 3½ minutes. Color.
Visual pollution in an urban area is seen through the eyes of a g

Noise boom. NBCEE. 26 minutes. Color.
Noise is a health hazard. This is a report on this particularly
pollution and on what interested citizens and technology can do abou

No turning back. NBCEE. 10 minutes. b&w.
We are presently enduring the dehumanization of the dangers of en
soon be too late to change this direction.

Our poisoned air. CDC. 58 minutes.
Answers the questions: What is air pollution? What does it do t
being done to control air pollution? What further action is require

tes. Color.
countryside clean.

.
atterns of world food shortages.

r.
level.

n adequate supply of water and outlines steps to be followed
population.

r.
Discusses the reasons why people deface public property

n for providing all living things with life-giving water.

s. Color.
through the eyes of a guest from abroad.

rt on this particularly dangerous form of environmental
d technology can do about lessening it.

ion of the dangers of environmental pollution. It will

tion? What does it do to us and our environment? What is
urther action is required?

Our vanishing fresh air. PGW. 55 minutes. Color.
This film deals with the air pollution problems faced by industri

People by the billions. CMGHF. 28 minutes. b&w.
Examines the implications of the population explosion.

The poisoned air. CAROUF. 50 minutes. Color and b&w.
John W. Gardner is joined by representatives of the automobile an
ways and means of dealing with unclean air.

Population ecology. EBEC. 19 minutes. Color.
The film dramatizes the effects of environment as they relate to
deaths.

Problems of conservation: our natural resources. EBEC. 11 minutes.
The film establishes man's reliance on resources, his misuse of so
to conserve resources. Man must control his population and pollutio

Problems of conservation: water. EBEC. 16 minutes. Color and b&w.
Documents two basic water problems obtaining an adequate supply o
supplies.

Problems with water is people. CMGHF. 30 minutes. Color.
Traces the Colorado River watershed from the snow covered Rockies

Radiation in perspective. USDA. 43 minutes. Color.
Beneficial uses of radioactive materials in medicine, research, in
in this film. The health hazards of radiation exposure are explained

Ravaged earth. NBCEE. 27 minutes. Color.
Scarred and torn, the land of the strip mines is a desolate moonsc
although strip mining is presently profitable, when land is permanent
and shortsighted.

Regulation of atomic radiation. USNAC. 29 minutes. Color.
Surveys the work of the Atomic Energy Commission in licensing and
materials.

Sources of air pollution, Effects of air pollution, Control of air poll
Explain the relationship between the modern technological way of li

ms faced by industrial cities, both large and small.

xplosion.

b&w.
of the automobile and petroleum industries in discussing

t as they relate to surplus or decline of births over

EBEC. 11 minutes. Color and b&w.
es, his misuse of some resources, and current efforts
ulation and pollution to keep the earth habitable.

es. Color and b&w.
an adequate supply of fresh water and maintaining existing

. Color.
snow covered Rockies to the delta in Baja, California.

or.
edicine, research, industry, and other fields are explored
xposure are explained.

is a desolate moonscape. Stewart Udall points out that
hen land is permanently destroyed, it is both foolish

s. Color.
ion in licensing and regulating the use of nuclear

Control of air pollution. USNAC. 5 minutes. Color.
echnological way of life and air pollution.

The squeeze. NEW. 10 minutes. b&w.
Creates an effective basis for discussion and

Tom Lehrer sings "Pollution." NYSCD. 2½ minutes.
Tom Lehrer sings about pollution in America in

Up to our necks. NBCEE. 26 minutes. Color.
New York City produces tons of garbage per yea
be exhausted. This film explores some of the alt

Water and life. CMGHF. 15 minutes. Color.
Shows how water acts as a medium in which raw
between living cells. Shows the importance of wa

Water for the community. COR F. 11 minutes. Colo
Describes the source of a community's water su
it leaves its source until it is distributed in t

Water: friend or enemy. WDP. 9 minutes. Color.
Indicates that water can be a friend to man i

What is ecology? EBEC. 11 minutes. Color.
Shows how biologists study the interrelationsh
and explains the importance of such studies to ma

Community sanitation. CMGHF. 45 fr. Color. (Con
Analyzes the health problem affecting the comm
the problem.

Conserving our water. VEC. 32 fr. b&w. Gr. 7-1
Discusses water pollution and other factors wh

Crisis of the environment. NYT. Gr. 7-12.
A multimedia kit containing 5 filmstrips with
endangered species. Preserve and protect. Brea
Vanishing species.

n and study of the world's population problem.

utes. Color.
ica in a humorous but dramatically expressive way.

er year and by 1975 all the city's land-fill areas will
he alternatives now available.

h raw materials, foods, and wastes can be transported
of water to living things.

Color and b&w.
ter supply and tells how the water is treated from the time
d in the community.

olor.
man if proper precautions are taken to see that it is pure.

tionships between plants, animals, and their environment
s to mankind.

FILMSTRIPS

. (Community health series.) Gr. 7-12.
he community and explains how the community meets and solves

r. 7-12.
tors which have created our water shortage.

s with records accompanied by a teacher's guide. Man the
Breaking the biological strand. Population explosion.

Enough water for everyone. EBEC. 45 fr. Color. (Conservi
The students see visual definitions of conservation.

Environmental pollution. Ward. Color. Gr. 7-12.
Contents: atmospheric pollution, fresh water pollution,
the crisis, and pollution control.

Interactions and environments. JH. Color. Record. Gr. 7-1
Seven filmstrips with recordings stress the everchanging
discussion questions help bring about a real understanding
community in which he lives.

The people problem. GA. Color. Records or cassettes. Gr.
Two filmstrips explains reasons for the population explo
population growth. Produced in cooperation with the Associ

Urban conservation today. SVE. 43 fr. Color. (Conservatio
Complexities of population explosion. Up-to-date analys
resources.

Water conservation today. SVE. 39 fr. Color. (Conservatio
Study of remedies for water problems. Explains causes o

Water science in the home. SVE. Color. Record. Gr. 7-12.
This sound filmstrip demonstrates how the science of wat
better and more useable for both homes and industries.

Water we drink. CMGHF. 45 fr. Color. (Community health se
Analyzes the problems affecting the community and explai
problems.

r. (Conserving our natural resources.) Gr. 7-9.
servation.

-12.
ter pollution, land pollution, marine pollution, nature of

ecord. Gr. 7-12.
e everchanging nature of our biosphere. Stimulating
understanding of man's responsibilities to the biological

assettes. Gr. 9-12.
opulation explosion and examine methods for controlling
with the Associated Press.

. (Conservation for today's America.) Gr. 4-8.
-to-date analysis of the importance of our natural

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